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THE EFFECT OF VACCINIA ON LEPROSY.

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It has been reported that vaccination of lepers is followed by a more or less acute outbreak of leprous manifestations.¹ The following account of the vaccination of a number of lepers in the Kalihi Hospital apparently confirms this report.

At the time when these vaccinations were begun there were 219 patients, including suspects, in the hospital. Examination of these patients showed that 163 had vaccination scars, 49 had no vaccination scars, and 7 (6 Filipinos, 1 Portuguese) had had smallpox. The number showing evidence of previous vaccination was much greater than was anticipated.

Before the virus for the vaccinations arrived, 20 patients had been paroled, 4 of these having no scars, thereby reducing the number having no evidence of previous vaccination to 45. Twenty-seven of these were vaccinated on August 23. The remaining 18 served as controls; though one case should not be considered, as she was showing an acute leprous outbreak at the time.

The type of the 27 cases vaccinated is recorded as follows: Nodular, 16; anesthetic, 4; mixed, 7. Vaccination was successful in 19 cases (9 nodular, 4 anesthetic, 6 mixed) and unsuccessful in 8 cases (7 nodular, 1 mixed). In the cases unsuccessfully vaccinated no evidence of any change of the leprous lesions was noted. Of the 19 successfully vaccinated cases, 11 (6 nodular, 5 mixed) developed acute leprous eruptions in the two weeks following date of vaccination. Eight (3 nodular, 4 anesthetic, 1 mixed) showed no evidence of any increased activity of their leprosy.

In character the eruption seen in these cases was like that seen at variable intervals in the course of leprosy under treatment. It consisted of a red, infiltrated rash, frequently beginning as small areas and then growing larger, sometimes coalescing to involve large areas. When it first appeared, the lesions were very painful under pressure. As the eruption progressed, the color, a bright red at first, changed

¹ Denney, Oswald E., and Hopkins, Ralph: Specific Leprous Reactions and Abnormal Vaccinia Induced in Lepers by Smallpox Vaccination. Public Health Reports, Vol. 37, No. 51, Dec. 22, 1922, pp. 3141-3149. Reprint No. 805.

to a purplish hue. About the time the vaccinia began to decline, the leprous eruption showed signs of beginning abatement. The first sign noted was a fine wrinkling of the tense shining skin over the infiltrated areas, indicative of a slight lessening of the local swelling. The color disappeared quite rapidly when the decline of the eruption started, and more slowly in the later stages. Desquamation of the epidermis followed in some cases, especially on the face when the eruption had appeared there.

With the appearance of the leprous activity there are constitutional symptoms in most cases, such as chilliness, fever, and general malaise. The fever may reach as high as 40° C., though usually it remains at 38° to 39° C. Some of the constitutional symptoms may be due to vaccinia.

The most severe eruption occurred one week after vaccination (Aug. 30); whereas the least severe eruptions were delayed until the latter part of the second week. The lightest eruptions appeared on September 4, and September 7 (thirteenth and sixteenth days, respectively).

One case (No. 2084) has had frequent outbreaks of this kind; and had this been the only case showing an eruption, no significance would be attached to it. Cases 1963 and 2003 had shown very slight eruptions from time to time, but the eruption following vaccinia was so much more severe than that usually seen, that it points very strongly to vaccinia as the agent exciting the eruption. Cases 2117 and 2168 had shown no eruption for a long period. Case 2194, a relatively recent admission, and a severe nodular case, showed one of the lightest, and the longest delayed, eruptions observed in the whole group.

Cases 2116, 2129, 2080, and 2095, though having shown but little recent activity, were cases that would be expected to show eruptions, if vaccinia would excite such an outbreak. Nevertheless these cases have shown no evidence of any increased activity. Of these four cases, *B. lepræ* is demonstrable in all except No. 2080.

It appears that the anesthetic cases are affected very little, if at all, by vaccinia, whereas, in these vaccinations, the mixed cases have shown the highest percentage of increased activity.

Of the 18 controls (unvaccinated, without vaccination scars), one, as stated above, was suffering from a leprous outbreak at the time that the examinations for the presence of scars were made, and, therefore, should not be considered. In the remaining 17, no outbreak has occurred, though as a group they are comparable to the vaccinated group.

Of 149 lepers having vaccination scars or evidence of having had smallpox, who were confined in the hospital at the time of the vacci-

nations, two have shown temporary increased activity, evidenced by eruptions, during the same period.

After observing this small series of cases, one can not escape the conviction that vaccinia had something to do with the appearance of the leprous manifestations in the successfully vaccinated cases. This phenomenon may also explain some of the opinions held by the older Hawaiian laity, that in many cases vaccination was the cause, or at least the exciting cause, of leprosy. During the days of arm-to-arm vaccination the possibility of the spread of leprosy by this procedure must be admitted. It is more probable, however, that the vaccination served to bring to light latent or unrecognized leprosy. It certainly can not be said to have caused the disease in the subjects of the test reported herein, the diagnosis having been established before the vaccination was done. The virus was produced by a regularly licensed firm in an eastern State and was obtained from the San Francisco branch office of the firm. Special care was taken to see that the virus was kept on ice during the voyage to Honolulu.

These patients will be observed further to determine whether there is any remote deleterious or beneficial effect shown in those vaccinated.

At the date of writing, September 23, one month after vaccination, all cases that showed eruption have returned to normal, except for some desquamation at the former site of the eruption. Eight of the vaccination ulcers are not completely healed. Six of these showed eruptions, and two did not. As in all vaccination ulcers, the healing has been slower in those cases showing some loss of tissue at the site of vaccination. The leprous eruption does not seem to have had any direct effect on the course of vaccinia.

I desire to acknowledge the courtesy of Surg. N. E. Wayson, who procured the vaccine for me, and of Dr. Charles Fowler, surgeon of the steamship *Wilhelmina*, of the Matson Navigation Co., who kept the virus under proper conditions on the voyage to Honolulu.

Case Records.

No. 1885, G. K., Hawaiian, age 27, male, single, farmer. Admitted 12/29/19; type, nodular; *B. lepræ* present; duration, 10 years prior to admission. First symptom, white areas on body; last bacteriological examination, 5/20/22, *B. lepræ* present. This is an advanced case of leprosy with much destruction of tissue in the nose and one eye.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Large vesicle at site of vaccination.

Aug. 31: The vaccination has developed a rather extensive "take" and there is a large zone of redness and infiltration about the site of inoculation. A leprous eruption is evident on the arms and legs, the spots being large, red, indurated, and tender.

Sept. 1: The eruption has extended to the face and ears. Both ears much enlarged. Confined to bed. Has chill and fever.

Sept. 5: The ears are smaller but several very large, red, indurated spots are present on the back.

Sept. 7: The eruption is declining and the vaccination site begins to show evidence of healing, though it will take longer than usual to heal the ulcer at the site of vaccination.

Sept. 9: Arm is healing. Eruption declining slowly.

Sept. 10: The eruption has improved rapidly in past two days. Snip from back and left wrist negative for *B. lepræ*.

Sept. 13: Snips from right forearm and right ear lobe show a few lepra bacilli present.

No. 1963, A. K. A., Part-Hawaiian, male, age 15, single, no occupation. Admitted 8/2/20; type, mixed; *B. lepræ* present; duration, 6 years before admission. First symptoms, crooking of fingers; last bacteriological examination, 7/8/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Slight vesiculation at site of vaccination.

Aug. 28: Typical vesicle present.

Aug. 31: A leprous eruption is appearing on the face, arms, and legs. Complains of chilliness, fever, and general malaise. Very tender in left axilla.

Sept. 3: The eruption is worse on the face, giving it a bloated appearance.

Sept. 5: Eruption continues as last noted.

Sept. 7: The outbreak of leprous manifestations is beginning to improve. The tenderness in the axilla is gone and the arm is beginning to heal. A bullous eruption has appeared on the right leg.

Sept. 9: Arm healing, redness gone from face, but cheeks are still swollen and puffed and show some desquamation. Vesicles on leg have ruptured, leaving a rather extensive ulcerated surface.

Sept. 11: Swelling of face has subsided, and only traces of the eruption remain. Ulcer on leg does not improve as rapidly as is desired.

Sept. 13: Leg remains about the same.

No. 1965, L. K., Hawaiian, female, age 18, single, no occupation. Examined on 1/27/15 and declared not a leper. First symptom, 1 year previously, white spots on cheek. Admitted 8/3/20; type, mixed; *B. lepræ* present. Last bacteriological examination, 1/23/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 28: Typical "take," in vesicular stage.

Aug. 31: Complains of slight chilliness and soreness in left axilla.

Sept. 4: Has shown no eruption until to-day, when a slight eruption was noticed on the forearms.

Sept. 5: Eruption slightly more prominent than yesterday.

Sept. 7: Eruption fading and arm healing.

Sept. 11: Only faint trace of the eruption left. Arm nearly healed. Snip from right forearm at site of eruption negative for *B. lepræ*.

Sept. 13: Bacteriological examination repeated, with negative results.

No. 1992, Y. F., age 15, female, Japanese, single, school girl. Admitted 10/26/20; type, nodular; *B. lepræ* present; duration, 4 months. First symptom, nodules on face and obstruction of nose; last bacteriological examination, 6/19/22, showed presence of *B. lepræ*.

Aug. 10: Shows no vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 25: Vaccinated area slightly puffy and red and appears as if the vaccination would be successful.

Aug. 26: Site of vaccination slightly red and seems to be approaching vesicular stage.

Aug. 28: The vaccination site has lost its color; the indications are that it will not "take."

Sept. 5: Frequent inspection of the arm has been made but there is no evidence of a "take."

Sept. 6: Patient has shown no increased activity of her leprous lesions since vaccinated. Her leprosy is practically stationary. She is a severe case of nodular leprosy and her general appearance is suggestive of phthisis, though she shows no evidence of active tuberculosis.

No. 2003, M. R. L., age 23, female, Portuguese, married, housewife; in Hawaii 15 years. Admitted 11/29/20; type, mixed; *B. lepræ* present; duration, 3 years prior to admission. First symptoms, swelling of fingers and hands; last bacteriological examination, 7/7/22, *B. lepræ* not found.

Aug. 10: Shows no vaccination scar.

Aug. 23: Vaccinated on left arm. (This case was added to the vaccinated list at her own request.)

Aug. 26: Slight vesiculation at site of vaccination.

Aug. 28: Complains of chilliness and tenderness in left axilla. Well-marked vesiculation, with zone of redness about site of vaccination. Confined to bed.

Aug. 30: There is a profuse eruption, apparently leprosy, on both forearms and both legs. The spots are bright red, indurated, and rather tender. The fingers and backs of the hands are swollen and show several large red lumps.

Aug. 31: The red spots are larger and show a tendency to coalesce. Complains of chills, followed by profuse sweating, especially about head and neck, appetite is gone. The erupted areas do not sweat.

Sept. 1: Eruption is profuse on forearms and legs. The forearms are uniformly red; the fingers and hands much swollen. There are some red spots on both cheeks, and the eyes have a puffy appearance. Albumen present in urine. Placed on a restricted diet (milk).

Sept. 2: Condition practically the same as yesterday.

Sept. 3: Condition unchanged, except color of eruption is slightly darker.

Sept. 4: The skin eruption is beginning to recede.

Sept. 5: Eruption fading rapidly; albumen much less.

Sept. 7: Improving quite rapidly; the face is beginning to desquamate at site of the red spots. The swelling of the hands is subsiding.

Sept. 9: Improvement continues.

Sept. 11: The color of the eruption has disappeared, though the hands and fingers are still somewhat swollen.

Sept. 13: Bacteriological examination of the site of recent eruption shows a few doubtful granular acid fast organisms.

No. 2026, M. K. K., part Hawaiian, female, age 14, single, no occupation. Admitted 3/16/21; type, nodular; *B. lepræ* present; duration, 2 years before admission. First symptom, not stated; she is a very marked nodular case of the textbook type. Last bacteriological examination, 8/17/22, *B. lepræ* present.

Aug. 10: No vaccination scar present.

Aug. 23: Vaccinated on left arm.

Aug. 26: Wassermann strong positive.

Aug. 26: Site of vaccination slightly red.

Aug. 28: Success of vaccination is doubtful.

Aug. 30: Vaccination unsuccessful.

Sept. 7: No leprosy outbreak seen thus far, though an old ulcer of the foot broke open again yesterday.

No. 2033, M. K., Hawaiian, female, age 16, single, no occupation. Admitted 4/2/21; type, nodular; *B. lepræ* present; duration, 8 months before admission. First symptoms, red spots on thighs; last bacteriological examination, 6/6/22, *B. lepræ* not found.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Slight vesiculation at site of vaccination.

Aug. 28: Typical vesicle present.

Aug. 31: Arm is rather sore and there is much tenderness in the axilla. Confined to bed on account of the tenderness.

Sept. 3: Tenderness in axilla is less and she is able to be out of bed and around the compound.

Sept. 5: The arm is healing normally. No eruption has appeared since vaccination.

Sept. 11: Vaccination nearly healed.

No. 2038, R. K., Hawaiian, female, age 13, single, no occupation. Admitted 4/9/21; type, nodular; *B. lepræ* present; duration, 2 years before admission. First

symptom, swelling of cheeks; last bacteriological examination 6/19/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Slight vesiculation of vaccinated site.

Aug. 28: Typical "take," a large vesicle with area of redness about the same.

Aug. 30: A profuse, red, elevated, leprous eruption is present on both arms and both legs.

Aug. 31: Eruption more profuse; a few spots present on face.

Sept. 1: Face covered with large, red, indurated spots which are beginning to show slight wrinkles, indicating beginning subsidence of swelling.

Sept. 7: Feels much better, and the color of the eruption is beginning to disappear.

Sept. 9: Improvement continuing. Able to be up and about her room.

Sept. 11: Has improved rapidly, but still shows definite evidence of eruption lesions. Snip from forehead and cheek, positive for *B. lepræ*.

No. 2045, M. N., male, age 50, Japanese, single, laborer, in Hawaii 20 years. Admitted 4/20/21; type, nodular; *B. lepræ* present; duration of disease, 5 years prior to admission. First symptom, swelling of face and ears; last bacteriological examination, 6/23/22, shows *B. lepræ* present.

Aug. 10: Shows no vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 25: Vaccination site appears red and puffy.

Aug. 26: Site of vaccination same as yesterday.

Aug. 28: Redness of site of vaccination less.

Aug. 30: Evidently the vaccination will not "take."

Aug. 31: The scratches inoculated with virus show no evidence of a "take" though within a circle 2 inches in diameter whose center is the site of vaccination, are three red lumps about the size of a pea.

Sept. 1: The red lumps are disappearing. Vaccination not successful.

No. 2049, S. C. K., Korean, male, age 47, single, laborer, in Hawaii 18 years. Admitted 4/25/21; type, mixed; *B. lepræ* present; duration, 1 year before admission. First symptom, anesthesia in right leg; last bacteriological examination, 6/23/22, *B. lepræ* present.

Aug. 10: No vaccination scar present.

Aug. 23: Vaccinated on left arm.

Aug. 25: Vaccinated site slightly red.

Aug. 28: Success of vaccination is doubtful.

Sept. 5: Vaccination unsuccessful.

Sept. 7: No exacerbation of leprous manifestations has occurred.

No. 2074, A. K., Hawaiian, female, age 14, single, no occupation. Admitted 7/6/21; type, mixed; *B. lepræ*, present. Patient's father, grandfather, brother, uncle, and aunt are lepers. Duration, unknown. First symptoms swelling of hands and fingers; last bacteriological examination, 6/19/22; *B. lepræ* not found.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Slight redness and puffiness at site of vaccination.

Aug. 28: Good vesicle; typical "take."

Aug. 30: Complains of chills and fever.

Aug. 31: A typical red, indurated, leprous eruption present on both arms and legs.

Sept. 1: Eruption appearing on the face as small, red, indurated spots, tender to the touch. Confined to bed with fever and general malaise.

Sept. 2: Eruption on face more pronounced. The forehead shows several large indurated swellings which are very tender.

Sept. 3: Eruption appears the same, though patient is feeling better and able to be out of bed.

Sept. 5: The rash is beginning to fade.

Sept. 7: Improvement continues.

Sept. 9: Face nearly clear of eruption; arm healing normally.

Sept. 11: No eruption noticeable, though traces can be found if searched for. Snip from forearm and forehead positive for lepra bacilli.

No. 2077, S. K., jr., Hawaiian, age 11, single, schoolboy. Admitted 7/13/21; type, nodular; *B. lepræ* present; duration, 2 months before admission. First symptom, nodules in ears; last bacteriological examination, 6/19/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccination on left arm.

Aug. 26: No change at site of vaccination.

Aug. 28: Vaccination apparently unsuccessful.

Aug. 30: Arm normal; no "take."

Sept. 11: No change seen in this patient's leprous condition since he was vaccinated.

No. 2080, E. L., Hawaiian, female, age 22, single, no occupation. First admitted 2/8/19; type, nodular; *B. lepræ* present; duration, 3 years prior to first admission. First symptom, spots on face. Paroled March 5, 1921. Readmitted July 19, 1921, with spots on face and *B. lepræ* present in these lesions. Last bacteriological examination, 6/19/21, *B. lepræ* not found.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 25: Site of vaccination slightly reddened.

Aug. 26: Slight vesiculation at site of vaccination.

Aug. 28: Typical "take;" vesicles well marked.

Aug. 31: Complaints of tenderness in left axilla.

Sept. 3: Tenderness less; no leprous eruption has yet appeared.

Sept. 5: Vaccination wound healing normally.

Sept. 7: Healing proceeding rapidly.

Sept. 11: Healing nearly complete.

No. 2084, J. K., Hawaiian, female, age 30, married, housewife. First admitted, 8/8/19; type, nodular; *B. lepræ* present; duration, 5 years prior to first admission. First symptom, swelling all over body. Paroled, 3/5/21. Readmitted, 7/19/21, with a general eruption; *B. lepræ* present. Last bacteriological examination, 6/6/22, *B. lepræ* present. During her last year of residence in the hospital, she has been subject to frequent outbreaks of leprous eruptions, one of the manifestations of the disease being the development of deep-seated indurations in the breast which subside as the eruption fades.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm. No active leprous eruption present.

Aug. 26: Vesiculation at site of vaccination.

Aug. 28: Arm shows a typical "take."

Aug. 30: General eruption on face, body, and extremities, with chilliness and fever and anorexia. Spots are extremely tender.

Aug. 31: Eruption more pronounced. Both breasts contain large indurated lumps.

Sept. 3: Eruption practically unchanged, but constitutional symptoms abating.

Sept. 5: Arm is healing normally. The eruption is beginning to decline.

Sept. 7: Improving rapidly; breasts are better, but still tender and contain lumps.

Sept. 9: Improving rapidly.

Sept. 11: Has shown remarkable improvement in past two days. Snip from forehead positive for *B. lepræ*.

No. 2089, M. P., Filipino, age 26, single, laborer, in Hawaii 9 years. Admitted 8/8/21; type, nodular; duration, 6 months prior to admission. First symptom, enlargement of nose; *B. lepræ* present. Last bacteriological examination, 7/7/22; *B. lepræ* present.

Aug. 10: No vaccination scar found.

Aug. 23: Vaccinated on left arm.

Aug. 26: Site of vaccination slightly reddened.

Aug. 28: Arm normal; no "take."

Sept. 11: No change seen in patient's condition since admission.

No. 2093, R. C., Hawaiian, female, age 36, married, housewife. Admitted 8/25/21; type, anesthetic; *B. lepræ* present; duration unknown; first symptoms unknown; last bacteriological examination, 7/6/22; *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Vesicle present, but has been scratched open.
Aug. 30: Typical "take"; complains of pain in axilla.
Aug. 31: Remains in bed on account of pain in axilla. Feeling normal otherwise.
Sept. 5: Arm is healing.
Sept. 7: Healing progressing normally. No eruption or exacerbation of leprosy symptoms has been noted.
Sept. 11: Healing nearly completed.

No. 2108, W. K., Hawaiian, male, age 7. Admitted 10/3/21; type, anesthetic; *B. lepræ* not found; duration, 6 months before admission. First symptoms, swelling of hand; last bacteriological examination, 6/19/22; *B. lepræ* not found.

Aug. 10: No vaccination scar.
Aug. 23: Vaccinated on left arm.
Aug. 26: Result of vaccination doubtful.
Aug. 28: Slight vesiculation present.
Aug. 30: Typical "take."
Sept. 5: Arm healing rapidly. Patient has shown no eruption or other evidence of leprosy since vaccinated. He has, however, become clear of all lesions present on admission and will probably be paroled in the near future.
Sept. 11: Vaccination healed.

No. 2111, A. H. T., part Hawaiian, female, age 27, single, no occupation. Admitted 10/7/21; type, nodular; *B. lepræ* present; duration, 5 years before admission. First symptom, white spots on arms; last bacteriological examination, 6/9/22; *B. lepræ* present.

Aug. 10: No vaccination scar.
Aug. 23: Vaccinated on left arm.
Aug. 26: Vesiculation at site of vaccination.
Aug. 28: Vesicle well developed and becoming pustular.
Aug. 30: Has an exacerbation of her leprosy lesions on both thighs, the spots being large, red, elevated, and tender upon pressure.
Aug. 31: The eruption has become general and is showing on all the extremities, and, to a less degree, on the face. Patient confined to bed. Complains of chilliness and fever.

Sept. 3: Eruption has remained practically stationary since last note.
Sept. 5: The eruption seems to be declining though she still has some fever.
Sept. 7: The rash is subsiding, but the afternoon temperature remains abnormal.
Sept. 9: Eruption is fading slowly. Arm healing satisfactorily.
Sept. 11: Much improvement in past two days. Snip from two of the recently erupted spots negative, though one doubtful field was found.
Sept. 13: Another bacteriological examination of the site of recent eruption shows a few typical lepra bacilli.

No. 2116, M. T., Japanese, female, age 7, single, born in Hawaii. Admitted 10/15/21; type, nodular; *B. lepræ* present; duration, one year prior to admission. First symptom, red spots on cheek; last bacteriological examination, 6/19/22; *B. lepræ* present.

Aug. 10: No vaccination scar.
Aug. 23: Vaccinated on left arm.
Aug. 26: Slight vesiculation at site of vaccination.
Aug. 28: Vesicle present.
Aug. 31: Running usual course of vaccination.
Sept. 5: Shows evidence of beginning healing.
Sept. 7: Healing progressing normally; no eruption has been observed.
Sept. 11: Healing of vaccination sore is practically complete.

No. 2117, N. P., Hawaiian, male, age 14, single, no occupation. First admission, 11/24/18; type, nodular; *B. lepræ* present; duration, one year prior to admission. First symptom, nodules on face; paroled 3/5/21. Readmitted 10/26/21; type, nodular; *B. lepræ* present; last bacteriological examination, 3/21/22, *B. lepræ* not found.

Aug. 10: No vaccination scar.
Aug. 23: Vaccinated on left arm.
Aug. 25: Beginning vesiculation at site of vaccination.
Aug. 26: Vesiculation well marked.

Aug. 31: A profuse, red, elevated tender rash has appeared on both arms and the face. Has some chilliness and fever and is confined to bed.

Sept. 3: Eruption a little more extensive to-day.

Sept. 5: The leprosy eruption continues, being most severe on the face and forehead, where the original lesions were located.

Sept. 7: Eruption receding and patient feeling much better.

Sept. 9: Eruption has improved rapidly in past two days.

Sept. 11: Only faint traces of the eruption are seen. Arm nearly healed. Snip from forehead and cheeks positive for *B. lepræ*.

No. 2127, E. K. L., part Hawaiian, age 17, female, single, no occupation. Examined 2/11/15 and declared "not a leper"; *B. lepræ* not found. Symptoms at that time, leucoderma areas on face. Examined and declared a leper 4/17/19; type, anesthetic; *B. lepræ* present. Duration, about seven years; symptoms, pink spots and areas on face, arms, and legs. Paroled 11/15/19; readmitted 11/28/21, *B. lepræ* present. Last bacteriological examination 7/13/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Vaccination site slightly reddened.

Aug. 28: Site of vaccination, showing typical vesicles.

Aug. 30: Following the usual course of vaccination. No complaints from patient.

Sept. 3: Has slight soreness in left axilla.

Sept. 5: Vaccination wound healing.

Sept. 7: Healing nearly complete. No change has been noted in this patient's condition, nor has she complained of chilliness, fever, or any other symptom.

Sept. 11: Arm nearly healed.

No. 2129, C. O. B., Korean, age 47, widower, laborer. Examined and declared leper 8/27/17; type, nodular; lepra bacilli present. First symptoms stated to be neuritis in legs five months previous to examination. Sent to Molokai 10/5/17; paroled from Molokai 11/5/20; readmitted to Kalihi 12/3/21, with many nodules on face, ears, body, and extremities. *B. lepræ* present.

Aug. 10: Shows no evidence of previous vaccination.

Aug. 23: Vaccinated on left arm.

Sept. 11: Arm healed.

No. 2146, N. K., Japanese, age 50, male, single, in Hawaii 25 years. Admitted 2/22; type, mixed; *B. lepræ* present; duration, nine years prior to admission. First symptom, swelling of cheeks; last bacteriological examination 2/9/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Appears like a beginning "take."

Aug. 28: Vaccinated site normal; evidently not successful.

Sept. 5: Vaccination unsuccessful.

No. 2155, E. K., part Hawaiian, age 8, female, single, no occupation. Admitted 2/23/22; type, anesthetic; *B. lepræ* not found; duration, about six months. First symptoms, swelling and contraction of fingers of left hand. Last bacteriological examination 7/8/22, *B. lepræ* not found.

Aug. 10: No vaccination scar present.

Aug. 23: Vaccinated on left arm.

Aug. 26: Slight vesiculation present.

Aug. 28: Typical vesicle present.

Aug. 31: Slightly tender in left axilla.

Sept. 5: Vaccination seems to be healing.

Sept. 7: Healing progressing normally. No eruption seen at any time.

Sept. 11: Scab is off, leaving a rather deep ulcer.

No. 2168, H. K., Hawaiian, age 12, single, male, no occupation. Admitted 6/2/19; type, nodular; *B. lepræ* present; duration, 1 year prior to admission; first symptom,

itching of hands and feet. Paroled 3/5/21. Readmitted 4/11/22; *B. lepræ* present; type, mixed. Last bacteriological examination 4/11/22; *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Beginning vesiculation noticed.

Aug. 28: Typical "take."

Aug. 31: Complains of feeling slightly indisposed and of soreness in left axilla.

Sept. 5: The vaccination is progressing nicely. To-day he shows a slight eruption on the face and forearm.

Sept. 6: Eruption is more pronounced, especially on face, being red, indurated, and tender.

Sept. 7: Eruption about the same as yesterday.

Sept. 9: Arm healing rapidly. Eruption has subsided.

Sept. 11: Only faint trace of the eruption can be made out. Snip from left forearm and right malar region, negative for *B. lepræ*.

No. 2191, P. M., Cuban-Filipino, age 37, male, single, laborer. Admitted 6/10/22; type, mixed; *B. lepræ* present. In Hawaii 12 years; duration, 2 months. First symptom, red elevated spot on forehead. Last bacteriological examination 6/10/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 25: Vaccinated site slightly reddened.

Aug. 28: Vaccination unsuccessful.

No. 2194, U. K., Hawaiian, age 20, male, single, seaman. Admitted 6/24/22; type, mixed; *B. lepræ* present; duration 8 months. First symptom enlargement of ear. Last bacteriological examination 8/17/22, *B. lepræ* present.

Aug. 10: No vaccination scar.

Aug. 23: Vaccinated on left arm.

Aug. 26: Site of vaccination slightly red and puffy.

Aug. 28: Vesicle present.

Sept. 5: Has run the usual course of vaccination.

Sept. 7: There is a slight leprous eruption on the back of the right leg. This seems to be a typical leprous outbreak, but is not severe and is delayed several days, as compared with the other cases. Until Aug. 30 this case received no chaulmoogra derivatives, but was treated with "oscol stibium," a colloidal antimony preparation.

Sept. 9: The eruption is declining, showing a wrinkled surface and less color.

Sept. 11: Vaccination nearly healed. Eruption has subsided. Snips from erupted spots on leg show *B. lepræ* present.

EDITOR'S NOTE: The following references to earlier work on the subject are of interest:

Morrow (Twentieth Century Practice of Medicine, Wm. Wood & Co., Vol XVIII, p. 503) says: "Hardy speaks of the good effects of an intercurrent attack of smallpox. Vaccination is sometimes said to exert an equally favorable influence. Beavan Rake particularly noted first swelling and then disappearance of the tubercles in patients whom he had vaccinated."

Dock (Modern Medicine, Osler & McCrae, Lea & Febiger, Philadelphia and New York, Vol. I, p. 845) notes that vaccination has been thought to have a curative effect on several diseases, including leprosy.

The influence of smallpox on leprosy has been made the subject of several reports, as follows:

1769. Petersen, Jonas: Afhandling om den islandske Skjorbug. Soroe. p. 87.

1848. Daniellssen, D.-C., et Boeck, W.: Traité de la spédalskhed, ou éléphantiasis des Grecs. Traduit de norvégien par Casson (de Nogaret). Paris. p. 113.

1875. Hardy, Alfred, et Labarraque, Edward: Lépre. In "Nouveau dictionnaire de médecine et de chirurgie pratiques." Jaccoud, ed. Paris, Bailliere. vol. 20, p. 384.

PRINCIPAL CAUSES OF DEATH: 1921.

The Department of Commerce announces that the compilations made by the Bureau of the Census show that 1,032,009 deaths occurred in 1921 within the death registration area of continental United States, representing a death rate of 11.6 per 1,000 population as compared with 13.1 in 1920. The rate for 1921 is the lowest rate recorded in any year since the beginning of the annual compilations in 1900.

The death registration area (exclusive of the Territory of Hawaii) in 1921 comprised 34 States, the District of Columbia, and 16 cities in nonregistration States, with a total estimated population on July 1 of 88,667,602, or 82.2 per cent of the estimated population of the United States.

The death rate from cancer increased from 83.4 per 100,000 in 1920 to 86 in 1921. Some of the other diseases for which the rates increased are diphtheria, typhoid fever, appendicitis, scarlet fever, diabetes, and puerperal fever. The fatalities caused by automobile accidents and injuries show an increase from 10.4 per 100,000 in 1920 to 11.5 in 1921.

A marked decrease is shown in the death rate from tuberculosis, which was 99.4 in 1921 as compared with 114.2 in 1920; also in the death rate from influenza and pneumonia (all forms) which was 99.8 in 1921 against 208.3 in 1920. The rates for measles, bronchitis, nephritis, whooping cough, heart disease, and diarrhea and enteritis also declined.

Number of deaths and death rates by leading causes for the death registration area in continental United States, 1920 and 1921, together with the percentage which each cause or group of causes contributed to the total.

Cause of death.	Deaths in the registration area (exclusive of Hawaii).					
	Number.		Rate per 100,000 population.		Per cent of total.	
	1921	1920	1921	1920	1921	1920
All causes.....	1,032,009	1,142,558	1,163.9	1,306.0	100.0	100.0
Heart diseases ¹	130,351	131,004	147.0	149.7	12.6	11.5
Influenza and pneumonia (all forms) ²	88,456	182,205	99.8	208.3	8.6	15.9
Tuberculosis (all forms).....	88,135	99,916	99.4	114.2	8.5	8.7
Cancer and other malignant tumors.....	76,274	72,931	86.0	83.4	7.4	6.4
Nephritis.....	75,696	78,192	85.4	89.4	7.3	6.8
External causes (suicide and homicide excepted).....	60,896	62,492	68.7	71.4	5.9	5.5
Automobile accidents and injuries.....	10,168	9,103	11.5	10.4	1.0	.8
Accidental falls.....	10,102	10,323	11.4	11.8	1.0	.9
Accidental drowning.....	6,489	4,977	7.3	5.7	.6	.4
Burns (conflagration excepted).....	5,329	6,645	6.0	7.6	.5	.6
Railroad accidents and injuries.....	5,297	6,426	6.0	7.3	.5	.6
Accidental shooting.....	2,346	2,262	2.6	2.6	.2	.2
Injuries by vehicles other than railroad cars, street cars, and automobiles.....	1,821	1,698	2.1	1.9	.2	.1
Mine accidents and injuries.....	1,777	2,171	2.0	2.5	.2	.2
Machinery accidents and injuries.....	1,573	2,153	1.8	2.5	.2	.2
Street-car accidents and injuries.....	1,460	1,746	1.6	2.0	.1	.2
Effects of heat other than burns.....	946	270	1.1	.3	.1	(³)
Other external causes.....	13,588	14,718	15.3	16.8	1.3	1.3

¹ Includes endocarditis and myocarditis (acute).

² Excludes capillary bronchitis in 1920.

³ Less than one-tenth of 1 per cent.

Number of deaths and death rates by leading causes for the death registration area in continental United States, 1920 and 1921, together with the percentage which each cause or group of causes contributed to the total.—Continued.

Cause of death.	Deaths in the registration area (exclusive of Hawaii).					
	Number.		Rate per 100,000 population.		Per cent of total.	
	1921	1920	1921	1920	1921	1920
Malformations, congenital debility and premature birth.....	60,265	61,080	68.0	69.8	5.8	5.3
Diarrhea and enteritis (total).....	45,837	47,605	51.7	54.4	4.4	4.2
Diarrhea and enteritis (under 2 years).....	37,192	38,514	41.9	44.0	3.6	3.4
Diarrhea and enteritis (2 years and over).....	8,645	9,091	9.7	10.4	.8	.8
Arterial diseases, atheroma, aneurism, etc.....	19,377	19,977	21.9	22.8	1.9	1.7
Diphtheria.....	15,683	13,395	17.7	15.3	1.5	1.2
Diabetes mellitus.....	14,933	14,062	16.8	16.1	1.4	1.2
Syphilis ¹	14,252	14,610	16.1	16.7	1.4	1.3
Appendicitis and typhlitis.....	12,809	11,702	14.4	13.4	1.2	1.0
Suicide (total).....	11,136	8,959	12.6	10.2	1.1	.8
By firearms.....	4,122	3,169	4.6	3.6	.4	.3
By hanging or strangulation.....	1,942	1,616	2.2	1.8	.2	.1
By poison.....	1,739	1,417	2.0	1.6	.2	.1
By asphyxia.....	1,401	1,124	1.6	1.3	.1	.1
By cutting or piercing instruments.....	712	640	.8	.7	.1	.1
By drowning.....	710	555	.8	.6	1	(²)
By jumping from high places.....	271	247	.3	.3	(²)	(²)
By crushing.....	130	97	.1	.1	(²)	(²)
Other suicides.....	109	94	.1	.1	(²)	(²)
Hernia and intestinal obstruction.....	9,509	9,314	10.7	10.6	.9	.8
Puerperal causes other than puerperal septicemia.....	8,970	10,976	10.1	12.5	.9	1.0
Respiratory diseases other than pneumonia (all forms) and bronchitis.....	8,730	10,120	9.8	11.6	.8	.9
Whooping cough.....	8,070	10,968	9.1	12.5	.8	1.0
Angina pectoris.....	8,031	7,571	9.1	8.7	.8	.7
Bronchitis ²	8,014	11,609	9.0	13.3	.8	1.0
Typhoid and paratyphoid fever.....	8,007	6,805	9.0	7.8	.8	.6
Homicide (total).....	7,545	6,205	8.5	7.1	.7	.5
By firearms.....	5,809	4,477	6.2	5.1	.5	.4
By cutting or piercing instruments.....	768	645	.9	.7	.1	.1
By other means.....	1,268	1,083	1.4	1.2	.1	.1
Cirrhosis of the liver.....	6,598	6,241	7.4	7.1	.6	.5
Puerperal septicemia.....	6,057	5,800	6.8	6.6	.6	.5
Paralysis without specified cause.....	5,526	5,528	6.2	6.7	.5	.5
Scarlet fever.....	4,718	4,004	5.3	4.6	.5	.4
Measles.....	3,790	7,712	4.3	8.8	.4	.7
Meningitis (nonepidemic).....	3,684	3,855	4.2	4.4	.4	.3
Dysentery.....	3,570	3,574	4.0	4.1	.3	.3
Malaria.....	3,229	3,136	3.6	3.6	.3	.3
Pellagra.....	2,541	2,322	2.9	2.7	.2	.2
Erysipelas.....	2,501	2,721	2.8	3.1	.2	.2
Smallpox.....	641	508	.7	.6	.1	(²)
All other defined causes.....	193,994	189,654	218.8	216.8	18.8	16.6
Unknown or ill-defined causes.....	14,184	15,505	16.0	17.7	1.4	1.4

¹ Less than one-tenth of 1 per cent.

² Includes tabes dorsalis (locomotor ataxia) and general paralysis of the insane.

³ Includes capillary bronchitis in 1920.

PROVISIONAL BIRTH FIGURES: 1922.

The Department of Commerce announces that provisional birth figures compiled by the Bureau of the Census for the first six months of 1922 indicate lower birth rates than for the corresponding six months of 1921. For the States compared the birth rate for the first six months was 22.7 in 1922 against 24.8 in 1921. The highest birth rate for the half year (30) is shown for North Carolina and the lowest (18.1) for Vermont.

Births so far reported for the first six months of 1922 indicate a lower birth rate for the year than the 1921 rate for the birth registration area (24.3).

Births (exclusive of stillbirths) and birth rates per 1,000 population, for certain States.

[The 1922 figures are provisional.]

Area.	Number of births occurring in--					
	1922			1921		
	April.	May.	June.	April.	May.	June.
Total, States ¹ shown for both years...	108,633	116,141	108,171	125,387	126,664	119,896
California.....	5,766	6,223	5,500	6,009	5,937	5,821
Connecticut.....	2,405	2,574	2,452	2,946	2,884	2,735
Delaware.....	346	376	424	415	427	419
Indiana.....	4,633	5,164	5,107	5,630	6,090	5,588
Kansas.....	2,918	2,747	2,104	3,249	3,416	3,289
Kentucky.....	4,402	4,714	3,988	5,894	5,979	5,527
Maine.....	1,548	1,494	1,359	1,618	1,503	1,478
Maryland.....	2,533	2,714	2,471	2,966	3,085	3,012
Massachusetts.....	(²)	(²)	(²)	7,861	7,633	7,620
Michigan.....	(²)	(²)	(²)	8,447	8,589	8,217
Minnesota.....	4,490	4,889	4,666	4,918	5,016	4,698
Mississippi.....	3,455	3,208	2,877	4,047	3,774	3,396
Montana.....	845	934	839	(³)	(³)	(³)
Nebraska.....	2,332	2,564	2,357	2,595	2,826	2,618
New Hampshire.....	762	832	802	845	883	857
New Jersey.....	5,666	6,121	6,224	6,345	6,542	6,277
New York.....	18,194	19,798	19,316	20,102	20,270	19,805
North Carolina.....	6,762	6,956	5,993	7,702	7,911	7,067
Ohio.....	9,141	10,040	9,390	11,076	11,230	10,628
Oregon.....	(²)	(²)	(²)	1,276	1,357	1,254
Pennsylvania.....	16,575	17,941	17,042	19,441	19,072	18,450
Rhode Island.....	(²)	(²)	(²)	1,164	1,214	1,161
South Carolina.....	3,804	3,918	3,355	4,534	4,469	3,815
Utah.....	(²)	(²)	(²)	1,315	1,251	1,188
Vermont.....	511	536	361	644	717	638
Virginia.....	5,094	5,445	5,032	6,113	6,067	5,622
Washington.....	2,146	2,170	1,932	2,302	2,395	2,259
Wisconsin.....	4,444	4,933	4,635	5,265	5,425	5,184
Wyoming.....	430	429	436	(³)	(³)	(³)

Births (exclusive of stillbirths) and birth rates per 1,000 population, for certain States—Continued.

[This 1922 figures are provisional.]

Area.	Annual birth rate per 1,000 population for—										
	1922					1921					
	First 6 months.	Second quarter.	April.	May.	June.	First 6 months.	Second quarter.	April.	May.	June.	The year.
Total, States ¹ shown for both years.....	22.7	21.7	21.5	22.2	21.4	24.8	24.5	25.2	24.6	24.0	24.4
California.....	19.6	19.0	19.0	19.9	18.1	20.0	19.9	20.4	19.5	19.8	20.2
Connecticut.....	21.7	20.6	20.2	21.0	20.6	24.4	24.2	25.3	23.9	23.5	24.0
Delaware.....	20.8	20.1	18.5	19.4	22.7	23.2	22.7	22.4	22.3	23.7	22.4
Indiana.....	21.2	20.0	19.0	20.4	20.8	23.4	23.4	23.2	24.2	23.0	23.0
Kansas.....	21.0	17.4	19.9	18.1	14.3	23.3	22.4	22.3	22.6	22.5	23.3
Kentucky.....	23.9	21.5	21.9	22.7	19.9	29.2	28.6	29.5	29.0	27.7	27.6
Maine.....	23.0	22.8	24.4	22.8	21.4	23.6	23.9	25.6	23.0	23.4	22.9
Maryland.....	22.8	20.8	20.7	21.5	20.2	25.4	24.8	24.8	24.7	24.9	25.1
Massachusetts.....	(²)	(²)	(²)	(²)	(²)	23.7	23.6	24.4	22.9	23.7	23.5
Michigan.....	(²)	(²)	(²)	(²)	(²)	26.3	26.6	27.1	26.7	26.4	25.3
Minnesota.....	23.4	22.8	22.2	23.4	23.1	24.3	24.1	24.6	24.3	23.5	23.6
Mississippi.....	22.5	21.4	23.5	21.1	19.6	25.9	25.1	27.6	24.9	23.1	25.8
Montana.....	18.5	17.7	17.4	18.6	17.2	(²)	(²)	(²)	(²)	(²)	(²)
Nebraska.....	23.0	22.0	21.5	22.9	21.7	24.8	24.6	24.1	25.4	24.3	24.5
New Hampshire.....	21.5	21.5	20.8	22.0	21.9	23.2	23.3	23.2	23.4	23.5	22.8
New Jersey.....	22.6	21.8	20.9	21.8	22.9	24.1	23.6	23.8	23.7	23.6	24.1
New York.....	22.0	21.5	20.7	21.8	22.0	23.1	22.8	23.2	22.6	22.8	22.7
North Carolina.....	30.0	29.8	31.1	31.0	27.6	34.3	34.8	36.0	35.7	33.0	33.8
Ohio.....	20.2	19.1	18.5	19.7	19.0	22.5	22.3	22.9	22.4	21.9	21.9
Oregon.....	(²)	(²)	(²)	(²)	(²)	19.9	19.5	19.4	20.0	19.1	19.3
Pennsylvania.....	24.3	23.0	22.5	23.5	23.1	26.2	25.7	26.7	25.3	25.3	25.8
Rhode Island.....	(²)	(²)	(²)	(²)	(²)	23.0	23.1	23.1	23.3	23.1	23.6
South Carolina.....	26.0	25.7	26.9	26.8	23.7	29.2	30.1	32.4	30.8	27.2	29.5
Utah.....	(²)	(²)	(²)	(²)	(²)	32.6	32.7	34.8	32.0	31.4	31.6
Vermont.....	18.1	16.0	17.7	17.9	12.5	22.8	22.8	22.3	24.0	22.1	22.5
Virginia.....	27.5	26.3	26.2	27.1	25.9	30.4	30.5	31.8	30.6	29.2	29.9
Washington.....	18.3	17.7	18.5	18.1	16.7	20.4	20.1	20.2	20.3	19.8	19.6
Wisconsin.....	21.3	20.8	20.0	21.5	21.0	23.9	23.8	24.0	23.9	23.6	23.0
Wyoming.....	25.7	25.1	25.4	24.5	25.7	(²)	(²)	(²)	(²)	(²)	(²)

¹ Includes District of Columbia.

² Figures not shown if transcripts of births are not received for the quarter.

³ Admitted to registration area for 1922.

PROVISIONAL MORTALITY FIGURES: 1922.

The Department of Commerce announces that provisional figures compiled by the Bureau of the Census for the first six months of 1922 indicate higher death rates than for the corresponding six months of 1921. For the States compared the death rate for the six months was 12.6 in 1922 against 12 for the first six months of 1921. The highest mortality rate for the half year is shown for Maine (15.7) and the lowest for Idaho (8.2).

These early figures forecast for the year 1922 a somewhat higher rate for the death registration area than the record low rate (11.6) for the year 1921.

Deaths (exclusive of stillbirths) from all causes and death rates per 1,000 population for certain States.

[The 1922 figures are provisional.]

State.	Number of deaths occurring in —					
	1922.			1921.		
	April.	May.	June.	April.	May.	June.
Total, States ¹ shown for both years....	84,231	80,083	70,239	80,655	80,411	72,642
California.....	(²)	(²)	(²)	4,054	3,864	3,654
Colorado.....	1,088	1,017	1,133	1,026	988	957
Connecticut.....	1,564	1,457	1,173	1,416	1,352	1,215
Delaware.....	255	234	231	220	247	263
Florida.....	931	879	882	1,025	1,036	870
Georgia.....	2,328	2,378	2,450	(²)	(²)	(²)
Idaho.....	298	275	208	(²)	(²)	(²)
Illinois.....	6,655	6,216	4,837	6,104	6,272	5,351
Indiana.....	3,023	2,907	2,508	2,857	2,942	2,620
Kansas.....	1,531	1,444	1,311	1,487	1,422	1,253
Kentucky.....	1,991	1,840	1,786	1,958	2,084	2,306
Louisiana.....	1,568	1,588	1,564	1,708	1,713	1,591
Maine.....	995	1,003	751	991	926	841
Maryland.....	1,647	1,629	1,459	1,599	1,573	1,621
Massachusetts.....	4,517	4,181	3,556	4,265	4,036	3,439
Michigan.....	3,782	3,769	3,185	3,829	3,688	3,274
Minnesota.....	2,153	1,961	1,777	2,137	1,972	1,703
Mississippi.....	1,468	1,491	1,710	1,643	1,721	1,657
Missouri.....	3,187	2,846	2,657	3,002	3,096	2,712
Montana.....	394	413	397	443	384	372
Nebraska.....	1,150	950	898	1,034	1,033	908
New Hampshire.....	578	538	459	502	492	468
New Jersey.....	3,515	3,245	2,815	3,294	3,064	2,826
New York.....	13,031	12,289	10,105	11,446	11,063	9,568
North Carolina.....	2,258	2,496	2,525	2,496	3,005	2,800
Ohio.....	5,782	5,577	4,709	5,506	5,486	4,971
Oregon.....	717	730	596	709	781	662
Pennsylvania.....	9,672	8,887	7,481	9,506	8,949	7,900
Rhode Island.....	(²)	(²)	(²)	685	621	588
South Carolina.....	1,532	1,786	1,646	1,787	1,933	1,788
Tennessee.....	1,935	1,869	2,148	1,930	2,180	2,160
Utah.....	(²)	(²)	(²)	412	402	332
Vermont.....	431	427	232	418	448	362
Virginia.....	2,404	2,274	2,285	2,232	2,477	2,587
Washington.....	1,282	1,237	1,134	1,180	1,174	1,037
Wisconsin.....	2,599	2,424	2,053	2,354	2,390	2,086
Wyoming.....	155	193	146	(²)	(²)	(²)

¹ Includes District of Columbia.

² Figures not shown in transcripts of death are not received for the quarter.

³ Admitted to registration area for 1922.

Deaths (exclusive of stillbirths) from all causes and death rates per 1,000 population for certain States—Continued.

[The 1922 figures are provisional.]

State.	Annual death rate per 1,000 population for —										
	1922.					1921.					
	First 6 months.	Second quarter.	April.	May.	June.	First 6 months.	Second quarter.	April.	May.	June.	The year.
Total, States ¹ shown for both years.....	12.6	11.3	12.3	11.3	10.3	12.0	11.4	11.9	11.5	10.7	11.5
California.....	(²)	(²)	(²)	(²)	(²)	13.7	12.9	13.8	12.7	12.4	13.2
Colorado.....	14.6	12.5	13.6	12.3	11.7	13.1	12.4	13.0	12.1	12.1	12.4
Connecticut.....	13.2	11.6	13.2	11.9	9.9	12.0	11.2	12.2	11.2	10.4	11.4
Delaware.....	14.0	12.6	13.6	12.1	12.3	14.1	12.9	11.9	12.9	14.2	13.1
Florida.....	11.7	10.5	11.1	10.1	10.5	12.2	11.7	12.5	12.2	10.6	11.8
Georgia.....	10.0	9.7	9.6	9.4	10.1	(²)	(²)	(²)	(²)	(²)	(²)
Idaho.....	8.2	6.8	7.9	7.1	5.5	(²)	(²)	(²)	(²)	(²)	(²)
Illinois.....	12.0	10.6	12.1	10.9	8.8	11.5	10.7	11.3	11.2	9.9	11.1
Indiana.....	12.9	11.3	12.3	11.5	10.2	12.1	11.4	11.8	11.7	10.8	11.9
Kansas.....	11.4	9.6	10.4	9.5	8.9	10.3	9.4	10.2	9.4	8.6	10.2
Kentucky.....	10.9	9.2	9.9	8.9	8.9	10.9	10.6	9.8	10.1	11.8	10.5
Louisiana.....	11.2	10.3	10.4	10.2	10.4	11.1	11.0	11.4	11.1	10.7	11.0
Maine.....	15.7	14.2	15.7	13.3	11.8	14.5	14.3	15.7	14.2	13.3	14.0
Maryland.....	14.3	12.8	13.5	12.9	12.0	14.2	13.0	13.2	12.6	13.4	13.6
Massachusetts.....	13.9	12.4	13.9	12.4	10.9	12.9	12.0	13.2	12.1	10.7	12.2
Michigan.....	12.1	11.1	11.9	11.4	10.0	12.1	11.4	12.3	11.4	10.5	11.6
Minnesota.....	10.2	9.6	10.6	9.4	8.8	10.1	9.6	10.7	9.6	8.5	9.4
Mississippi.....	10.9	10.5	10.0	9.8	11.7	11.1	11.2	11.2	11.3	11.3	11.1
Missouri.....	11.9	10.2	11.3	9.8	9.4	11.0	10.3	10.7	10.7	9.7	10.8
Montana.....	9.2	8.1	8.1	8.2	8.2	8.9	8.4	9.4	7.9	7.9	8.2
Nebraska.....	10.1	9.1	10.6	8.5	8.3	9.7	9.1	9.6	9.3	8.4	9.2
New Hampshire.....	15.5	14.2	15.8	14.2	12.5	14.2	13.2	13.8	13.0	12.8	13.7
New Jersey.....	13.2	11.6	12.9	11.6	10.4	12.4	11.3	12.4	11.1	10.6	11.7
New York.....	14.5	13.3	14.8	13.5	11.5	13.2	12.2	13.2	12.3	11.0	12.3
North Carolina.....	11.8	11.0	10.4	11.1	11.6	12.0	12.7	11.7	13.6	13.1	11.3
Ohio.....	12.2	10.7	11.7	10.9	9.6	11.6	10.8	11.4	10.9	10.3	11.3
Oregon.....	11.9	10.1	10.8	10.6	9.0	10.9	10.8	10.8	11.5	10.1	10.4
Pennsylvania.....	13.2	11.6	13.1	11.7	10.2	13.2	11.9	13.1	11.9	10.8	12.4
Rhode Island.....	(²)	(²)	(²)	(²)	(²)	13.3	12.4	13.6	11.9	11.7	12.6
South Carolina.....	11.9	11.6	11.0	12.2	11.6	12.2	12.9	12.8	13.3	12.8	11.9
Tennessee.....	11.3	10.1	10.0	9.3	11.0	10.8	10.6	10.0	10.9	10.9	10.7
Utah.....	(²)	(²)	(²)	(²)	(²)	11.1	10.0	10.9	10.3	8.8	10.4
Vermont.....	14.5	12.4	14.9	14.3	8.0	14.8	14.0	14.5	15.0	12.5	14.2
Virginia.....	12.7	11.8	12.4	11.3	11.7	12.8	12.5	11.6	12.5	13.4	12.2
Washington.....	11.2	10.3	10.9	10.3	9.8	9.9	9.8	10.4	10.0	9.1	9.5
Wisconsin.....	11.1	10.5	11.7	10.6	9.2	10.7	10.2	10.7	10.5	9.5	10.3
Wyoming.....	9.6	9.6	9.1	11.0	8.6	(²)	(²)	(²)	(²)	(²)	(²)

¹ Includes District of Columbia.

² Figures not shown if transcripts of death are not received for the quarter.

³ Admitted to registration area for 1922.

January 5, 1923.

DEATHS DURING WEEK ENDED DECEMBER 23, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended December 23, 1922, and corresponding week 1921. (From the Weekly Health Index, December 27, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Dec. 23, 1922	Corresponding week, 1921.
Policies in force.....	50, 843, 565	48, 535, 904
Number of death claims.....	9, 177	8, 203
Death claims per 1,000 policies in force, annual rate.....	9.4	8.8

Deaths from all causes in certain large cities of the United States during the week ended December 23, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, December 27, 1922, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1922.	Week ended Dec. 23, 1922.		Annual death rate per 1,000, corre- sponding week 1921.	Deaths under 1 year.		Infant mor- tality rate, week ended Dec. 23, 1922. ²
		Total deaths.	Death rate. ¹		Week ended Dec. 23, 1922.	Corre- sponding week 1921.	
Total.....	27, 911, 985	7, 491	14.0	12.6	1, 005	826	.....
Akron, Ohio.....	208, 435	37	9.3	5.0	6	3	66
Albany, N. Y.....	116, 223	37	16.6	18.6	4	5	92
Atlanta, Ga.....	220, 047	59	14.0	18.6	10	6	.....
Baltimore, Md.....	762, 222	224	15.3	11.9	20	23	57
Birmingham, Ala.....	191, 017	50	13.6	15.1	4	7	.....
Boston, Mass.....	764, 017	266	18.2	16.3	40	27	107
Bridgeport, Conn.....	143, 555	36	13.1	10.9	4	2	51
Buffalo, N. Y.....	528, 163	126	12.4	11.6	20	14	79
Cambridge, Mass.....	110, 944	40	18.8	15.6	8	3	137
Camden, N. J.....	121, 915	40	17.1	11.3	4	4	63
Chicago, Ill.....	2, 833, 288	765	14.1	12.2	108	108	.....
Cincinnati, Ohio.....	404, 865	144	18.5	14.5	13	9	83
Cleveland, Ohio.....	854, 565	195	11.9	9.4	18	24	47
Columbus, Ohio.....	253, 455	86	17.7	11.8	9	4	95
Dallas, Tex.....	171, 974	43	13.0	13.3	6	5	.....
Dayton, Ohio.....	161, 824	36	11.6	14.8	6	8	97
Denver, Colo.....	267, 591	82	16.0	17.2	9	8	.....
Detroit, Mich.....	993, 678	237	12.4	9.0	51	32	96
Duluth, Minn.....	104, 183	17	8.5	.....	1	.....	21
Erie, Pa.....	109, 528	27	12.9	8.8	3	2	59
Fall River, Mass.....	120, 790	33	14.2	9.1	9	2	126
Flint, Mich.....	111, 794	25	11.7	.....	11	.....	207
Fort Worth, Tex.....	114, 717	24	10.9	12.6	2	3	.....
Grand Rapids, Mich.....	143, 572	37	13.4	11.4	5	4	77
Houston, Tex.....	150, 087	28	9.7	9.0	12	4	.....
Indianapolis, Ind.....	333, 257	99	15.5	14.9	12	12	89
Jersey City, N. J.....	305, 911	78	13.3	11.4	12	15	77
Los Angeles, Calif.....	634, 866	188	15.4	16.8	14	16	58
Louisville, Ky.....	256, 877	78	15.8	16.3	1	4	11
Lowell, Mass.....	114, 423	25	11.4	19.3	4	6	66
Lynn, Mass.....	101, 673	27	13.8	.....	4	.....	101
Memphis, Tenn.....	167, 862	63	19.6	18.3	5	7	.....
Milwaukee, Wis.....	476, 603	107	11.7	7.1	19	14	92
Minneapolis, Minn.....	400, 970	92	12.0	10.9	20	8	111
Nashville, Tenn.....	122, 832	42	17.8	14.5	3	.....	.....
New Bedford, Mass.....	127, 542	28	11.4	9.6	8	3	114
New Haven, Conn.....	169, 987	29	8.9	12.8	5	3	61
New Orleans, La.....	399, 616	131	17.1	18.5	20	12	.....
New York, N. Y.....	5, 839, 746	1, 432	13.0	12.1	190	179	.....
Bronx Borough.....	809, 536	158	10.2	10.1	14	9	48
Brooklyn Borough.....	2, 117, 164	493	12.1	11.2	71	70	74
Manhattan Borough.....	2, 271, 888	670	15.4	13.7	89	86	83
Queens Borough.....	516, 737	93	9.4	11.2	7	13	38
Richmond Borough.....	124, 401	38	15.9	12.0	9	1	165
Newark, N. J.....	431, 792	118	14.3	11.5	20	12	89

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and births for 1921. Cities left blank are not in the registration area for births.

³ Enumerated population Jan. 1, 1920.

Deaths from all causes in certain large cities of the United States during the week ended December 23, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, December 27, 1922, issued by the Bureau of the Census, Department of Commerce)—Continued.

City.	Estimated population July 1, 1922.	Week ended Dec. 23, 1922.		Annual death rate per 1,000, corresponding week 1921.	Deaths under 1 year.		Infant mortality rate, week ended Dec. 23, 1922. ²
		Total deaths.	Death rate. ¹		Week ended Dec. 23, 1922.	Corresponding week 1921.	
Norfolk, Va.	124,915	30	12.5	9.9	3	4	56
Oakland, Calif.	233,279	46	10.3	12.7	6	3	75
Omaha, Nebr.	200,739	47	12.2	12.4	13	8	141
Paterson, N. J.	138,521	43	16.2	6.4	5	2	78
Philadelphia, Pa.	1,894,500	617	17.0	13.2	80	51	96
Pittsburgh, Pa.	907,902	211	18.1	14.5	34	32	113
Portland, Oreg.	269,240	60	11.6	12.6	4	12	39
Providence, R. I.	241,011	70	15.1	13.1	7	9	56
Richmond, Va.	178,365	48	14.0	13.4	5	5	60
Rochester, N. Y.	311,548	69	11.5	10.1	9	5	69
St. Louis, Mo.	795,008	199	13.1	12.5	19	12	65
St. Paul, Minn.	239,836	64	13.9	10.5	7	7	92
Salt Lake City, Utah	123,918	27	11.4	12.0	6	6	68
San Antonio, Tex.	178,056	57	16.7	15.3	13	12	28
San Francisco, Calif.	529,792	140	13.8	9.3	3	4	138
Seattle, Wash.	315,312	72	11.9	15.4	9	8	96
Springfield, Mass.	140,052	48	17.9	9.7	8	3	24
Syracuse, N. Y.	181,012	38	10.9	13.6	1	5	38
Tacoma, Wash.	100,369	20	10.4	18.7	4	7	123
Toledo, Ohio	260,717	58	11.6	14.9	18	18	104
Trenton, N. J.	125,075	44	18.3	15.2	5	12	54
Washington, D. C.	437,571	120	14.3	6.6	3	1	62
Worcester, Mass.	188,449	55	15.2	11.9	3	4	39
Yonkers, N. Y.	105,422	22	10.9				
Youngstown, Ohio	144,970	35	12.6				

¹ Annual rate per 1000 population.

² Deaths under 1 year per 1000 births—an annual rate based on deaths under 1 year for the week and births for 1921. Cities left blank are not in the registration area for births.

³ Enumerated population Jan. 1, 1920.

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

Reports for Week Ended December 30, 1922.

ALABAMA.		COLORADO—continued.	
	Cases.		Cases.
Chicken pox.....	3	Pneumonia.....	7
Diphtheria.....	15	Scarlet fever.....	23
Influenza.....	115	Smallpox.....	7
Pneumonia.....	14	Whooping cough.....	4
Scarlet fever.....	8		
Tuberculosis.....	11	CONNECTICUT.	
ARKANSAS.		Chicken pox.....	48
Chicken pox.....	50	Conjunctivitis (infectious).....	3
Diphtheria.....	19	Diphtheria.....	72
Influenza.....	123	German measles.....	1
Malaria.....	37	Influenza.....	21
Measles.....	4	Measles.....	321
Mumps.....	3	Mumps.....	13
Paratyphoid fever.....	4	Pneumonia (lobar).....	41
Pellagra.....	6	Scarlet fever.....	107
Pneumonia.....	1	Tuberculosis (all forms).....	27
Scarlet fever.....	8	Typhoid fever.....	3
Smallpox.....	2	Whooping cough.....	72
Trachoma.....	10		
Tuberculosis.....	30	DELAWARE.	
Typhoid fever.....	9	Chicken pox.....	12
Whooping cough.....	37	Influenza.....	36
CALIFORNIA.		Measles.....	50
Cerebrospinal meningitis—San Francisco.....	1	Mumps.....	1
Diphtheria.....	110	Pneumonia.....	6
Influenza.....	13	Scarlet fever:	
Leprosy—San Francisco.....	1	Wilmington.....	12
Lethargic encephalitis:		Scattering.....	3
Berkeley.....	1	Tuberculosis.....	1
Los Angeles County.....	1	Whooping cough.....	4
Measles.....	20		
Scarlet fever.....	75	DISTRICT OF COLUMBIA.	
Smallpox.....	7	Chicken pox.....	29
Typhoid fever.....	5	Diphtheria.....	13
COLORADO.		Influenza.....	6
(Exclusive of Denver.)		Lethargic encephalitis.....	
Chicken pox.....	14	Measles.....	21
Diphtheria.....	18	Scarlet fever.....	22
Impetigo contagiosa.....	2	Tuberculosis.....	22
Influenza.....	1	Typhoid fever.....	4
Jaundice (infectious).....	1	Whooping cough.....	39
Measles.....	3		
Mumps.....	27	FLORIDA.	
		Dengue.....	14
		Diphtheria.....	22
		Influenza.....	36
		Malaria.....	28

FLORIDA—continued.

	Cases.
Pneumonia.....	54
Polioimyelitis.....	1
Scarlet fever.....	1
Smallpox.....	1
Typhoid fever.....	15

GEORGIA.

Actinomycosis.....	2
Chicken pox.....	21
Dengue.....	1
Diphtheria.....	32
Dysentery (bacillary).....	1
Hookworm disease.....	8
Influenza.....	505
Malaria.....	5
Measles.....	12
Mumps.....	7
Pneumonia.....	25
Scarlet fever.....	10
Septic sore throat.....	2
Smallpox.....	1
Trachoma.....	1
Tuberculosis (pulmonary).....	8
Typhoid fever.....	4
Whooping cough.....	2

ILLINOIS.

Cerebrospinal meningitis:	
Cook County (including Chicago).....	2
Chicago.....	1
Jefferson County.....	1
Diphtheria:	
Cook County (including Chicago).....	215
Chicago.....	192
Lake County.....	14
Macon County.....	13
Madison County.....	14
Scattering.....	138
Influenza.....	46
Pneumonia.....	531
Polioimyelitis—Rock Island County.....	1
Scarlet fever:	
Cook County (including Chicago).....	100
Chicago.....	83
Madison County.....	8
Morgan County.....	10
Peoria County.....	18
Stephenson County.....	8
Scattering.....	131
Smallpox.....	34
Typhoid fever.....	23
Whooping cough.....	190

INDIANA.

Diphtheria.....	114
Polioimyelitis—St. Joseph County.....	1
Scarlet fever.....	79
Smallpox.....	24
Typhoid fever.....	5

IOWA.

Diphtheria.....	76
Scarlet fever.....	111
Smallpox.....	2

KANSAS.

	Cases.
Chicken pox.....	82
Diphtheria.....	112
German measles.....	2
Influenza.....	6
Measles.....	32
Mumps.....	3
Pneumonia.....	49
Scarlet fever.....	118
Smallpox.....	2
Tuberculosis.....	22
Typhoid fever.....	3
Whooping cough.....	19

LOUISIANA.

Dengue.....	8
Diphtheria.....	42
Polioimyelitis.....	1
Scarlet fever.....	9
Smallpox.....	14
Typhoid fever.....	24

MAINE.

Chicken pox.....	6
Pneumonia.....	7
Scarlet fever.....	13
Tuberculosis.....	2
Typhoid fever.....	2
Whooping cough.....	8

MARYLAND.¹

Chicken pox.....	125
Diphtheria.....	104
Dysentery.....	1
German measles.....	2
Influenza.....	82
Lethargic encephalitis.....	1
Measles.....	91
Mumps.....	17
Ophthalmia neonatorum.....	2
Pneumonia (all forms).....	130
Polioimyelitis.....	2
Scarlet fever.....	65
Smallpox.....	1
Tuberculosis.....	53
Typhoid fever.....	9
Whooping cough.....	76

MASSACHUSETTS.

Cerebrospinal meningitis.....	2
Chicken pox.....	195
Conjunctivitis (suppurative).....	7
Diphtheria.....	229
German measles.....	6
Influenza.....	83
Lethargic encephalitis.....	2
Measles.....	712
Mumps.....	137
Ophthalmia neonatorum.....	13
Pneumonia (lobar).....	170
Polioimyelitis.....	2
Scarlet fever.....	234
Septic sore throat.....	4
Trachoma.....	1
Tuberculosis (all forms).....	109
Typhoid fever.....	6
Whooping cough.....	313

¹ Week ended Friday.

MICHIGAN.		NEBRASKA—continued.	
	Cases.		Cases.
Diphtheria.....	244	Septic sore throat.....	4
Measles.....	102	Smallpox.....	0
Pneumonia.....	215	Tuberculosis.....	1
Scarlet fever.....	361	Whooping cough.....	4
Smallpox.....	64		
Tuberculosis.....	221	NEW JERSEY.	
Typhoid fever.....	14	Cerebrospinal meningitis.....	1
Whooping cough.....	92	Chicken pox.....	173
		Diphtheria.....	202
MINNESOTA.		Influenza.....	26
Cerebrospinal meningitis.....	2	Measles.....	804
Chicken pox.....	5	Pneumonia.....	165
Diphtheria.....	78	Scarlet fever.....	159
Influenza.....	1	Trachoma.....	1
Measles.....	52	Trichinosis.....	2
Pneumonia.....	2	Typhoid fever.....	8
Scarlet fever.....	200	Whooping cough.....	122
Smallpox.....	22		
Tuberculosis.....	44	NEW MEXICO.	
Typhoid fever.....	2	Chicken pox.....	10
Whooping cough.....	10	Diphtheria.....	26
		Mumps.....	2
MISSISSIPPI.		Pneumonia.....	3
Dengue.....	4	Rocky Mountain spotted fever.....	1
Diphtheria.....	28	Scarlet fever.....	6
Influenza.....	686	Tuberculosis.....	14
Scarlet fever.....	8		
Smallpox.....	1	NEW YORK.	
Typhoid fever.....	5	(Exclusive of New York City.)	
		Cerebrospinal meningitis.....	4
MISSOURI.		Diphtheria.....	172
Cerebrospinal meningitis.....	1	Influenza.....	60
Chicken pox.....	5	Lethargic encephalitis.....	4
Diphtheria.....	52	Measles.....	384
Epidemic sore throat.....	5	Pneumonia.....	280
Influenza.....	167	Poliomyelitis.....	1
Pneumonia.....	6	Scarlet fever.....	270
Scarlet fever.....	78	Smallpox.....	1
Smallpox.....	10	Typhoid fever.....	21
Trachoma.....	4	Whooping cough.....	223
Tuberculosis.....	4		
Typhoid fever.....	2	NORTH CAROLINA.	
Whooping cough.....	7	Chicken pox.....	64
		Diphtheria.....	47
MONTANA.		German measles.....	5
Diphtheria.....	16	Measles.....	81
Scarlet fever.....	23	Scarlet fever.....	67
Smallpox.....	2	Septic sore throat.....	4
Typhoid fever.....	2	Smallpox.....	12
		Typhoid fever.....	4
NEBRASKA.		Whooping cough.....	83
Cerebrospinal meningitis—York County.....	1		
Chicken pox.....	35	OREGON.	
Diphtheria:		Cerebrospinal meningitis.....	1
Omaha.....	8	Chickenpox.....	38
Ord.....	8	Diphtheria:	
Scattering.....	25	Portland.....	8
German measles.....	1	Scattering.....	8
Influenza.....	47	Influenza.....	13
Lethargic encephalitis—Omaha.....	1	Measles.....	4
Measles.....	2	Pneumonia.....	16
Mumps.....	5	Scarlet fever.....	26
Pneumonia.....	4	Smallpox:	
Scarlet fever:		Polk County.....	12
Omaha.....	10	Scattering.....	10
York County.....	30	Tuberculosis.....	30
Scattering.....	35	Whooping cough.....	1

¹ Deaths.

SOUTH DAKOTA.		WASHINGTON—continued.	
	Cases.		Cases.
Chicken pox.....	4	Tuberculosis.....	17
Diphtheria.....	9	Typhoid fever.....	7
Influenza.....	1	Whooping cough.....	33
Scarlet fever.....	26		
Smallpox.....	3	WEST VIRGINIA.	
Tuberculosis.....	12	Diphtheria.....	16
Whooping cough.....	3	Influenza.....	301
		Scarlet fever.....	10
		Typhoid fever.....	1
TEXAS.		WISCONSIN.	
Cerebrospinal meningitis.....	2	Milwaukee:	
Diphtheria.....	30	Chicken pox.....	27
Measles.....	24	Diphtheria.....	25
Pellagra.....	3	Influenza.....	2
Pneumonia.....	11	Measles.....	539
Scarlet fever.....	12	Pneumonia.....	8
Smallpox.....	4	Scarlet fever.....	71
Typhoid fever.....	3	Tuberculosis.....	16
		Typhoid fever.....	2
		Whooping cough.....	17
VERMONT.		Scattering:	
Chicken pox.....	35	Cerebrospinal meningitis.....	1
Diphtheria.....	1	Chicken pox.....	107
Measles.....	34	Diphtheria.....	87
Mumps.....	2	Influenza.....	24
Pneumonia.....	4	Measles.....	230
Scarlet fever.....	24	Pneumonia.....	16
Whooping cough.....	37	Polio-myelitis.....	2
		Scarlet fever.....	147
WASHINGTON.		Smallpox.....	40
Chicken pox.....	86	Tuberculosis.....	13
Diphtheria.....	18	Typhoid fever.....	6
Lethargic encephalitis—Lincoln County.....	2	Whooping cough.....	79
Measles.....	2		
Mumps.....	8	WYOMING.	
Pneumonia.....	1	Diphtheria.....	1
Scarlet fever:		Pneumonia.....	2
Spokane.....	14	Scarlet fever.....	10
Scattering.....	25	Smallpox.....	1
Smallpox:		Tuberculosis.....	1
Spokane.....	18		
Scattering.....	31		

Reports for Week Ended December 23, 1922.

DISTRICT OF COLUMBIA.		KENTUCKY—continued.	
	Cases.		Cases.
Chicken pox.....	26	Typhoid fever.....	3
Diphtheria.....	25	Whooping cough.....	17
Influenza.....	2		
Measles.....	13	NORTH CAROLINA.	
Polio-myelitis.....	1	Chicken pox.....	135
Scarlet fever.....	19	Diphtheria.....	60
Tuberculosis.....	17	German measles.....	4
Typhoid fever.....	1	Measles.....	102
Whooping cough.....	23	Scarlet fever.....	55
		Septic sore throat.....	7
		Smallpox.....	23
		Typhoid fever.....	3
		Whooping cough.....	75
KENTUCKY.			
Chicken pox.....	10	NORTH DAKOTA.	
Diphtheria:		Chicken pox.....	9
Jefferson County.....	16	Diphtheria.....	26
Scattering.....	21	Impetigo contagiosa.....	1
Influenza.....	81	Measles.....	3
Measles:		Pneumonia.....	10
Henderson County.....	53	Scarlet fever.....	35
McCracken County.....	87	Smallpox.....	22
Scattering.....	23	Trachoma.....	1
Pneumonia.....	19	Tuberculosis.....	3
Scarlet fever.....	8	Typhoid fever.....	2
Septic sore throat.....	5	Whooping cough.....	2
Tuberculosis—Jefferson County.....	10		

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Pollomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
OCTOBER, 1922.										
Delaware.....		46	1	9	13			65		9
NOVEMBER, 1922.										
Alabama.....		200	281	133	3	14	2	43	5	74
California.....		1,189	138	20	79	5	3	891	66	94
Delaware.....		19	13	5	25			67		9
Hawaii.....	2	22	109		248			1		12
Idaho.....		32						20	22	11
Iowa.....	1	539			5		2	448	13	9
Kansas.....	1	686	12	1	47	3	1	630	21	48
Maine.....	1	120	8		52		3	134	1	18
Mississippi.....	2	330	1,392	6,194	510	170	6	58	30	101
North Carolina.....	2	1,254			201		3	533	108	56
Oklahoma.....		74						48	7	17
Oregon.....		67	2		6			55	43	25
South Carolina.....	2	400	1,545	11		3		47	1	17
South Dakota.....	1	92	5		15			194	39	16
Virginia.....	3	1,411	1,355	202	163	10	4	631	13	77
Washington.....		91			20		1	177	70	52
Wisconsin.....	3	491	145		2,692		5	207	619	43

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922.

ANTHRAX.

City.	Cases.	Deaths.
Pennsylvania:		
Philadelphia.....	1	1

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years," gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Dec. 16, 1922.		City.	Median for previous years.	Week ended Dec. 16, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Michigan:			
Alameda.....	0	2		Detroit.....	0	1	
Los Angeles.....	0		1	Minnesota:			
Oakland.....	0	1		Duluth.....	0	1	1
Pasadena.....	0	1		Missouri:			
San Francisco.....	1	1		Kansas City.....	0	1	
District of Columbia:				New York:			
Washington.....	0	1		Buffalo.....	0		1
Florida:				New York.....	3	4	
Tampa.....			1	North Carolina:			
Maryland:				Raleigh.....	0	1	1
Baltimore.....	1		1	Wisconsin:			
Massachusetts:				Milwaukee.....	1	1	
Boston.....	1		1				
Fall River.....	0	1	1				

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA.

See p. 30; also Current State summaries, p. 19; and Monthly summaries, by States, p. 23.

INFLUENZA.

City.	Cases.		Deaths, week ended Dec. 16, 1922.	City.	Cases.		Deaths, week ended Dec. 16, 1922.
	Week ended Dec. 17, 1921.	Week ended Dec. 16, 1922.			Week ended Dec. 17, 1921.	Week ended Dec. 16, 1922.	
Alabama:				Minnesota:			
Birmingham.....		1	1	Minneapolis.....			1
California:				Missouri:			
Alameda.....	1			Kansas City.....		2	2
Berkeley.....		1		St. Louis.....		3	
Los Angeles.....	3	12		Montana:			
Riverside.....		3		Missoula.....	1		
San Francisco.....	3	3	2	Nebraska:			
Colorado:				Lincoln.....			1
Denver.....			1	New Jersey:			
Connecticut:				Jersey City.....		1	
Bridgeport.....			1	Kearny.....		1	
New Haven.....			1	Montclair.....		1	
District of Columbia:				Newark.....	6		
Washington.....		1	1	Trenton.....		1	
Florida:				New York:			
Tampa.....	4			Albany.....	14	1	
Georgia:				Binghamton.....	1		
Albany.....	1	4		Cohoes.....	1	1	
Atlanta.....	3	14	1	Jamestown.....		1	
Augusta.....			1	New York.....	34	43	6
Brunswick.....		10		Rochester.....			1
Macon.....		75		Syracuse.....		1	
Savannah.....	1	45	3	North Carolina:			
Valdosta.....		2		Durham.....			1
Illinois:				Raleigh.....		5	1
Chicago.....	15	18	6	Rocky Mount.....			1
Decatur.....		1		Salisbury.....			1
Freeport.....	1			Ohio:			
Oak Park.....		1		Akron.....		2	
Indiana:				Cincinnati.....		1	4
Bloomington.....		1	1	Cleveland.....		4	
Elkhart.....	2			Zanesville.....			1
Mishawaka.....			1	Pennsylvania:			
Terre Haute.....			1	Philadelphia.....	3	3	5
Kansas:				Rhode Island:			
Topeka.....	1			Providence.....		1	
Kentucky:				South Carolina:			
Louisville.....	1	2	1	Charleston.....		9	
Louisiana:				Columbia.....		106	
New Orleans.....	3	3	2	South Dakota:			
Maine:				Sioux Falls.....	1	1	
Saunderland.....		2		Texas:			
Maryland:				San Antonio.....		1	2
Baltimore.....	19	34	1	Utah:			
Cumberland.....	1	1		Salt Lake City.....			1
Massachusetts:				Virginia:			
Boston.....	1	2	1	Petersburg.....		1	1
Cambridge.....	1			Richmond.....			1
Everett.....				Roanoke.....		8	
Fall River.....		2	1	West Virginia:			
Haverhill.....		1		Fairmont.....		5	
Lynn.....			1	Wisconsin:			
Medford.....	1			La Crosse.....		1	
Michigan:				Manitowoc.....	2		
Detroit.....	4	2	3				

LEPROSY.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Massachusetts:			West Virginia:		
Lawrence.....	1	1	Huntington.....		1

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

LETHARGIC ENCEPHALITIS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Nebraska:					
Omaha.....	1	1			

MALARIA.

Alabama:			Mississippi:		
Birmingham.....	3		Biloxi.....	1	
Arkansas:			New York:		
North Little Rock.....	1		New York.....	1	
California:			Tennessee:		
Sacramento.....	1		Memphis.....	2	
Georgia:			Texas:		
Atlanta.....	2		Abilene.....	2	1
Savannah.....	1				
Louisiana:					
New Orleans.....	2				

MEASLES.

See p. 30; also Current State summaries, p. 19; and Monthly summaries, by States, p. 23.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			South Carolina:		
Montgomery.....	1		Greenville.....		1
Arkansas:			Texas:		
Little Rock.....	1		Abilene.....	8	2
Georgia:			El Paso.....	1	
Atlanta.....		1	Houston.....		2
Augusta.....		1	Utah:		
Louisiana:			Salt Lake City.....		1
New Orleans.....	1	1			
New Hampshire:					
Concord.....		1			

PNEUMONIA (ALL FORMS).

Alabama:			District of Columbia:		
Anniston.....	5		Washington.....		18
Birmingham.....		9	Florida:		
Mobile.....		2	Tampa.....		2
Montgomery.....	2		Georgia:		
Tuscaloosa.....	2		Atlanta.....		16
Arkansas:			Augusta.....		6
Little Rock.....	2		Savannah.....		6
California:			Valdosta.....		3
Berkeley.....	1		Illinois:		
Glendale.....		1	Aurora.....		1
Long Beach.....		1	Chicago.....	261	77
Los Angeles.....	44	13	Cicero.....	4	
Oakland.....		8	Decatur.....	1	
Pasadena.....	1		East St. Louis.....	3	1
Riverside.....	2		Forest Park.....	1	
Sacramento.....		3	Galesburg.....	2	
San Bernardino.....	1		Jacksonville.....	3	
San Diego.....		4	Kewanee.....	1	
San Francisco.....	9	8	Oak Park.....	3	
Colorado:			Pekin.....	1	
Denver.....		13	Peoria.....		1
Pueblo.....		6	Rockford.....		3
Connecticut:			Springfield.....		2
Bridgeport.....		4	Indiana:		
Bristol.....	1		Anderson.....		1
Derby.....	1		Crawfordsville.....		2
Greenwich.....	1		East Chicago.....		4
Hartford.....	8	5	Elwood.....	1	
New Haven.....		8	Gary.....		1

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Indiana—Continued.			Minnesota:		
Huntington.....		1	Duluth.....	6	1
Indianapolis.....		10	Hibbing.....		1
Kokomo.....		1	Mankato.....	1	
La Fayette.....		2	Minneapolis.....		9
Michigan City.....		1	Rochester.....	1	
Mishawaka.....		2	Missouri:		
Muncie.....		1	Independence.....		1
South Bend.....		2	Kansas City.....	13	10
Terra Haute.....		2	St. Joseph.....		6
Iowa:			Montana:		
Muscatine.....	2		Anaconda.....		1
Kansas:			Great Falls.....		3
Fort Scott.....		1	Helena.....		2
Kansas City.....	1		Missoula.....	1	
Topeka.....	9	1	Nebraska:		
Wichita.....	2		Lincoln.....	3	
Kentucky:			Omaha.....		10
Covington.....		3	New Hampshire:		
Henderson.....	1		Dover.....		1
Lexington.....	7	1	Keene.....	2	
Louisville.....	1	4	New Jersey:		
Owensboro.....	1		Asbury Park.....	1	
Louisiana:			Atlantic City.....	2	1
New Orleans.....	25	18	Bayonne.....	1	
Maine:			Clifton.....	2	
Bangor.....	6	2	East Orange.....	6	
Biddeford.....		1	Englewood.....		1
Lewiston.....	2	1	Garfield.....		2
Sanford.....	1		Harrison.....	2	
Maryland:			Hoboken.....		2
Baltimore.....	55	29	Jersey City.....	8	
Massachusetts:			Kearny.....	2	
Amesbury.....	1		Montclair.....	1	
Beverly.....	2	1	Morristown.....	2	
Boston.....	44	37	Newark.....	57	17
Brockline.....	1		Orange.....	1	
Cambridge.....		8	Passaic.....	6	5
Chelsea.....	3		Paterson.....	7	
Clinton.....		1	Perth Amboy.....		2
Easthampton.....	1		Plainfield.....	2	
Everett.....		2	Summit.....	4	1
Fall River.....	6	4	Trenton.....	11	6
Fitchburg.....	1		Union.....	2	
Greenfield.....	1		West New York.....		1
Haverhill.....		1	West Orange.....	3	
Lawrence.....	2	1	New York:		
Lowell.....		4	Albany.....	17	
Lynn.....	3	2	Auburn.....	2	
Malden.....	4		Buffalo.....	16	10
Medford.....		1	Cohoes.....	5	1
Melrose.....	1		Elmira.....		1
Methuen.....		1	Geneva.....	1	
New Bedford.....		5	Glen Falls.....	4	1
Newton.....		2	Hornell.....		1
Pittsfield.....		5	Ithaca.....	3	1
Quincy.....	2	1	Jamestown.....	5	3
Salem.....	1		Lackawanna.....	2	
Somerville.....	4	1	Mount Vernon.....		2
Springfield.....		3	New York.....	386	206
Taunton.....		2	Newburgh.....	4	
Waltham.....	1		Niagara Falls.....	2	1
Westtown.....	1		North Tonawanda.....	2	
Westfield.....		1	Olean.....	1	
Winthrop.....	2		Peekskill.....		1
Worcester.....	11	8	Port Chester.....	2	1
Michigan:			Poughkeepsie.....		4
Ann Arbor.....		2	Rochester.....	14	5
Battle Creek.....	2		Saratoga Springs.....	3	2
Detroit.....	81	27	Schenectady.....		
Flint.....	5		Syracuse.....	10	4
Grand Rapids.....	3		Troy.....	10	4
Hamtramck.....		4	Watertown.....	2	1
Highland Park.....		2	White Plains.....	2	1
Holland.....	1		Yonkers.....		2
Jackson.....	2	1	North Carolina:		
Kalamazoo.....	1		Rocky Mount.....		1
Pontiac.....	1		Salisbury.....		2
Port Huron.....	1		Wilmington.....		6
			Winston-Salem.....		5

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Ohio:			Tennessee:		
Akron.....	15	1	Memphis.....		3
Ashtabula.....		1	Nashville.....		5
Barberton.....		1	Texas:		
Bucyrus.....		1	Abilene.....	1	
Canton.....		2	Beaumont.....		2
Cincinnati.....		14	Dallas.....		1
Cleveland.....	46	21	Fort Worth.....		2
Columbus.....		5	Galveston.....		2
Dayton.....	1		Houston.....		4
East Cleveland.....		1	San Antonio.....		1
Hamilton.....		2	Utah:		
Lima.....		1	Salt Lake City.....		9
Mansfield.....	2		Vermont:		
Newark.....		1	Rutland.....		2
Sandusky.....		2	Virginia:		
Springfield.....		1	Alexandria.....		2
Toledo.....		9	Danville.....		1
Youngstown.....		2	Norfolk.....		5
Zanesville.....		3	Richmond.....		4
Oklahoma:			Roanoke.....		1
Oklahoma.....		3	West Virginia:		
Oregon:			Bluefield.....		1
Portland.....		5	Charleston.....		3
Pennsylvania:			Huntington.....		2
Philadelphia.....	115	71	Wheeling.....		2
Rhode Island:			Wisconsin:		
Cumberland.....		2	Beloit.....	4	2
Pawtucket.....		5	Fond du Lac.....	2	
Providence.....		9	Kenosha.....		1
South Carolina:			Madison.....	2	
Charleston.....		2	Milwaukee.....		15
Columbia.....	6		Racine.....		1
Greenville.....	1		Sheboygan.....		1
South Dakota:			Superior.....		2
Sioux Falls.....	4	1			

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years," gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended Dec. 16, 1922.		City.	Median for pre- vious years.	Week ended Dec. 16, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				New Jersey:			
Birmingham.....	0	1	1	Bloomfield.....	0	3	
Connecticut:				Paterson.....	0	1	
Bridgeport.....	0	1	1	New York:			
Georgia:				New York.....	1	6	1
Savannah.....	0	1	1	Yonkers.....	0	1	
Illinois:				Rhode Island:			
Chicago.....	0	1		Providence.....	0	2	
East St. Louis.....	0	1	1	Wisconsin:			
Maine:				Waukesha.....		1	1
Lewiston.....	0	1					
Michigan:							
Pontiac.....	0	1					

RABIES IN ANIMALS.

City.	Cases.	City.	Cases.
California:		Tennessee:	
Oakland.....	1	Memphis.....	3
Pasadena.....	1	Texas:	
		Beaumont.....	1

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

RABIES IN MAN.

City.	Cases.	Deaths.
Texas:		
Dallas.....		1

SCARLET FEVER.

See p. 30; also Current State summaries, p. 19; and Monthly summaries, by States, p. 23.

SMALLPOX.

The column headed "Median for previous years," gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended Dec. 16, 1922.		City.	Median for pre- vious years.	Week ended Dec. 16, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Nebraska:			
Sacramento.....	0	1		Omaha.....	3	1	
Colorado:				New Mexico:			
Denver.....	10	10	9	Albuquerque.....	0		1
Connecticut:				New York:			
Bridgeport.....	0	1		New York.....	0	1	
Florida:				Ohio:			
St. Petersburg.....		1		Dayton.....	0	1	
Illinois:				Fremont.....	0	2	
Aurora.....	0	1		New Philadelphia.....	1	2	
Chicago.....	2	3		Oklahoma:			
Indiana:				Tulsa.....	2	1	
Anderson.....	0	1		Oregon:			
Gary.....	0	1		Portland.....	6	4	
Kansas:				Pennsylvania:			
Kansas City.....	3	1		Philadelphia.....	0	3	
Parsons.....	0	4		Texas:			
Owensboro.....	0	5		Corsicana.....		1	
Michigan:				Utah:			
Highland Park.....	0	1		Salt Lake City.....	2	7	
Kalamazoo.....	0	1		Washington:			
Minnesota:				Spokane.....	11	1	
Duluth.....	0	13		Wisconsin:			
Minneapolis.....	13	7		Ashland.....	0	1	
Montana:				Eau Claire.....	0	1	
Great Falls.....	2	1		Superior.....	0	26	

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			New York:		
Montgomery.....	1		New York.....		1
California:			North Carolina:		
San Francisco.....		1	Raleigh.....		1
Illinois:			Winston-Salem.....	1	1
Chicago.....	1	1	Tennessee:		
Indiana:			Nashville.....		2
Michigan City.....		1	Texas:		
Massachusetts:			Abilene.....	4	1
Attleboro.....		1			

TUBERCULOSIS.

See p. 30, also Current State summaries, p. 19.

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

TYPHOID FEVER.

The column headed "Median for previous years," gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Dec. 16, 1922.		City.	Median for previous years.	Week ended Dec. 16, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Missouri:			
Birmingham.....	2	3	1	Carthage.....		1	
Arkansas:				Kansas City.....	0		1
Little Rock.....	0	1		St. Louis.....	3	2	
California:				Nebraska:			
Los Angeles.....	1	7		Omaha.....	0	3	
Sacramento.....	0	2		New Hampshire:			
Denver.....	1	1		Concord.....	0	1	
Colorado:				New Jersey:			
Denver.....	1	1		Orange.....	0	1	
Pueblo.....	0		1	Paterson.....	0	1	
Connecticut:				West Orange.....	0	1	
New Haven.....	1	2		New York:			
Florida:				New York.....	12	19	2
Tampa.....	0	2		Newburgh.....	0	2	
Georgia:				North Tonawanda.....	0		1
Augusta.....	0	2		Olean.....	0	1	
Savannah.....	1	4		Rochester.....	0	2	
Illinois:				North Carolina:			
Chicago.....	4	1	3	Winston-Salem.....	0	1	
Jacksonville.....	0	1		Ohio:			
Mattoon.....	0	1		Ashtabula.....	0	1	
Indiana:				Canton.....	0	1	
Indianapolis.....	0	1		Cleveland.....	2	6	1
Kentucky:				Dayton.....	0	1	
Henderson.....	0	1		Toledo.....	1	2	
Louisville.....	0	1		Pennsylvania:			
Louisiana:				Philadelphia.....	4	3	1
New Orleans.....	3	2	1	Rhode Island:			
Maine:				Providence.....	1	1	
Bangor.....	0	1		Tennessee:			
Maryland:				Memphis.....	0	1	
Baltimore.....	3	3	1	Texas:			
Cumberland.....	0	1		Abilene.....	0	1	1
Massachusetts:				San Antonio.....	0	1	
Boston.....	1	2		Utah:			
Chelsea.....	0	1		Salt Lake City.....	1	3	
Haverhill.....	0	1	1	Virginia:			
Lawrence.....	0	1		Roanoke.....	0	1	
Melrose.....	0	2		Washington:			
Quincy.....	0	1		Seattle.....	0	1	
Wakefield.....	0	1		Spokane.....	0	2	
Michigan:				West Virginia:			
Detroit.....	3	5	1	Fairmont.....	0	3	
Jackson.....	0	1	1	Huntington.....	0	2	
Port Huron.....	0	1		Wisconsin:			
Minnesota:				Madison.....	0	1	
Minneapolis.....	1	1		Sheboygan.....	0	2	
Winona.....	0	1		Superior.....	0	1	

TYPHUS FEVER.

City.	Cases.	Deaths.
California:		
Los Angeles.....	1	

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Anniston.....	17,734		1							
Birmingham.....	178,806	62	3				3		6	3
Mobile.....	60,777	23	4							1
Montgomery.....	43,464	13								4
Tuscaloosa.....	11,906		1				2			
Arkansas:										
Hot Springs.....	11,695	4			1					
Little Rock.....	65,142		5		1		2		4	
California:										
Alameda.....	28,806	6	3	1			2		2	1
Berkeley.....	56,036	14	4	1	1		5			
Eureka.....	12,923	6			1		2		5	
Glendale.....	13,536	8								
Long Beach.....	55,593	26	4	1			3		1	1
Los Angeles.....	576,673	178	36	3	4		38		61	11
Oakland.....	216,261	67	9	1	1		12		5	4
Pasadena.....	45,354	21	7				5		1	1
Richmond.....	16,843	1					2			
Riverside.....	19,341	3								1
Sacramento.....	65,908	17			1		3		1	1
San Bernardino.....	18,721	12								5
San Diego.....	74,683	33	6		3		7		3	2
San Francisco.....	506,676	164	29	2	2		7		11	1
Santa Barbara.....	19,441	7								
Santa Cruz.....	10,917	3								
Vallejo.....	21,107	5								
Colorado:										
Denver.....	256,491	111	41		5		27	1		14
Pueblo.....	43,050	12	10				2			
Connecticut:										
Bridgeport.....	143,555	35	13	1	17		11		1	2
Bristol.....	20,620	8	4	1	30				3	
Derby.....	11,238	4	2	1	19		8			1
Fairfield (town).....	11,475	4			4		1			1
Greenwich (town).....	22,123						2			
Hartford.....	138,036	39	23		2		7		5	1
Manchester (town).....	18,370	4	1							
Milford (town).....	10,193	1								
New Haven.....	162,537	33	2		68		3		2	3
New London.....	25,688	7								
District of Columbia:										
Washington.....	437,571	136	19	2	8		17	1	20	8
Florida:										
St. Petersburg.....	14,237	9	5	1	1					
Tampa.....	51,608	16	1							2
Georgia:										
Atlanta.....	200,616	86	4	1			3			8
Augusta.....	52,548	23			1				4	3
Macon.....	52,935		3		1				1	2
Rome.....	15,252		1				2			
Savannah.....	83,252	37	3							2
Valdosta.....	10,783	4								
Idaho:										
Boise.....	21,393	6	1							
Illinois:										
Alton.....	24,682	6	3				2			1
Aurora.....	36,397	9	6	1			2		2	
Centralia.....	12,491	4					1			
Chicago.....	2,701,705	597	217	15	131	2	84	1	135	36
Cicero.....	44,995	8	1	1					3	
Decatur.....	43,818	4					1		11	
East St. Louis.....	66,767	19	5	2	1		1		2	1
Elgin.....	27,454	11					2			
Evanston.....	37,234	11	2				3			
Forest Park.....	10,768									
Galesburg.....	23,834	8					1		1	
Jacksonville.....	15,713	5							1	1
Kewanee.....	16,026	4								
Mattoon.....	13,552	2	2				2			
Oak Park.....	39,858	16	6		1		3			1
Pekin.....	12,096	6							1	
Peoria.....	76,121	13	1		2		9			1
Quincy.....	35,978	10								
Rockford.....	65,651	21	4				3			1
Springfield.....	59,183	14	3		2		1		11	2

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Indiana:											
Anderson.....	29,767	4	2				1				
Bloomington.....	11,595	2			1						
Crawfordsville.....	10,139	2									
East Chicago.....	35,567	9	1	1			2				
Elwood.....	10,790		2								
Frankfort.....	11,585	2			1		1		1		
Gary.....	55,378	11	4	1			5				
Hammond.....	36,004	6	1				1		1		
Huntington.....	14,000	3					2				
Indianapolis.....	314,194	78	49		2		3		14	5	
Kokomo.....	30,067	9	3	1			1				
La Fayette.....	22,486	7	12				4				
Logansport.....	21,626	4									
Michigan City.....	19,457	4	1		3		1				
Mishawaka.....	15,195	7	3		17		5				
Muncie.....	36,524	7	2								
South Bend.....	70,983	16	2		62				1	2	
Terre Haute.....	66,083	29	4	1			3	1			
Iowa:											
Burlington.....	24,057	8	4								
Cedar Rapids.....	45,566						2				
Clinton.....	24,151		10								
Davenport.....	56,727		21				2				
Dubuque.....	39,141		1	1	23		4				
Iowa City.....	11,267						2				
Marshalltown.....	15,731						2				
Mason City.....	20,065	4	9				2				
Muscatine.....	16,068	5	1								
Ottumwa.....	23,003		2								
Sioux City.....	71,227	7			1		3		1		
Waterloo.....	36,230		2				8				
Kansas:											
Atchison.....	12,630		1				1				
Coffeyville.....	13,452	3									
Fort Scott.....	10,693	6	6						6		
Kansas City.....	101,177		8		6		7		3		
Lawrence.....	12,436	5	1				4				
Leavenworth.....	16,912		3								
Parsons.....	16,028	3									
Salina.....	15,085	4					1				
Topeka.....	50,022	13	36	1	1		5				
Wichita.....	72,217	19	22				2			1	
Kentucky:											
Covington.....	57,121	15	2				1			2	
Henderson.....	12,169	5			37	1					
Lexington.....	41,534	16	3						1	1	
Louisville.....	294,891	56	19		1		2		9	4	
Paducah.....	24,735		1		51						
Louisiana:											
New Orleans.....	387,219	140	22	2			6		32	9	
Maine:											
Auburn.....	16,985	1			1		4				
Bangor.....	25,978						1				
Bath.....	14,731	2									
Biddeford.....	18,008	4					1				
Lewiston.....	31,791	8					1				
Portland.....	69,272	12	3	1	15		2				
Sanford (town).....	10,691	1									
Maryland:											
Baltimore.....	733,826	229	50	2	26	1	25		25	20	
Cumberland.....	29,837	6					1				
Massachusetts:											
Adams (town).....	12,967	3	1								
Amesbury (town).....	10,036	1	1				1				
Arlington (town).....	18,665	4	2				1		1		
Attleboro.....	19,731	5			12		1			1	
Beverly.....	22,561	5	1						2		
Boston.....	748,060	238	76	1	62	3	61	2	37	15	
Braintree (town).....	10,580	2			1		1				
Brookline.....	37,748	12	3		1		3		3	1	
Cambridge.....	109,694	34	6	1	18	1	7		1	3	
Chelsea.....	43,184	15	4		44		2		2	2	
Chicopee.....	36,214	6									

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Clinton	12,979	7								
Dedham	10,792	0								
Easthampton	11,261	1	3	1						
Everett	40,120	10	7		17		2		1	
Fall River	120,485	42	12	1	103	7	1		6	4
Fitchburg	41,029	10					2		1	
Frammingham	17,033	5								
Gardner	16,971	6	2				4		2	2
Greenfield	15,462	5			1					1
Haverhill	53,884	24	4	1	2		1		2	3
Lawrence	94,270	25	4				1		3	1
Leominster	19,744	2			1				2	
Lowell	112,759	8	12	1	20		9		1	3
Lynn	99,148	18	5		48		8		3	2
Malden	49,103	13	6		3		6		3	1
Medford	39,038	7	1		1					
Melrose	18,204	0			1		5			
Methuen	15,189	4								
New Bedford	121,217	24	2	1	143		7		8	
Newburyport	15,618	2	1		4		1			
Newton	46,054	11	1		2		7			
North Adams	22,282	4	2				1			
Northampton	21,951	13	1							
Peabody	19,552	5	7				2			
Pittsfield	41,763	12	2				9		1	1
Plymouth	13,045	1								
Quincy	47,876	10	3		4		6		1	1
Salem	42,529	10	1	1			3		2	
Somerville	93,091	19	9	2	14		8	1	7	
Southbridge	14,245	5					1			1
Springfield	129,614	24	3		5		3		7	1
Taunton	37,137	8					1			
Wakefield	13,025	2	1						1	
Waltham	30,915	6	3	1	1		3			
Waterown	21,457	7	1		1		2		4	
Webster	13,258	3					1			
West Springfield	13,443	1	2		6		3			
Westfield	18,604	3	1							
Winchester	10,485	3								
Winthrop	15,455	1								
Woburn	16,574	2								
Worcester	179,754	44	13		10		18		2	2
Michigan:										
Alpena	11,101		1				2			
Ann Arbor	19,516	19	7		1				1	
Battle Creek	36,164		7				12			
Benton Harbor	12,233	4	1		5		6		2	
Detroit	993,678	223	82	9	11		94	2	32	21
Flint	91,599	22	19	2	3		14		5	1
Grand Rapids	137,634	34	7		2		6		8	1
Hamtramck	48,615	16	3				1		1	3
Highland Park	46,499	16			2					
Holland	12,183						8			
Jackson	48,374	11	2				6			
Kalamazoo	48,487	20	6		1		12		1	1
Marquette	12,718		2				5			
Pontiac	34,273	5	5				1		1	
Port Huron	25,944	11					2		2	2
Sault Ste. Marie	12,096	4								
Minnesota:										
Duluth	98,917	14	2		27		10		12	
Faribault	11,080	1			1		7			
Hibbing	15,080	1					11			
Minneapolis	380,582	77	39	2	2		63	2	21	6
Rochester	13,722	12							1	1
St. Cloud	15,873						4			
Virginia	14,022		1		24		4			
Winona	19,143	7	2				3			
Mississippi:										
Biloxi	10,937	1								

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Missouri:										
Carthage.....	10,068	1	5	1						
Independence.....	11,686	6								
Joplin.....	29,902		2				1			
Kansas City.....	324,410	96	22	5	1		6		7	5
St. Joseph.....	77,939	29	5	1			4			3
St. Louis.....	772,897	176	43	3	11		30		25	9
Montana:										
Anaconda.....	11,668	2								
Billings.....	15,100	3					1			
Great Falls.....	24,121	8	1							1
Helena.....	12,037	6			1		2		1	
Missoula.....	12,668	6							1	
Nebraska:										
Lincoln.....	54,948	14	1							
Omaha.....	191,601	62	15	1	1		9			4
New Hampshire:										
Berlin.....	16,104	1								
Concord.....	22,167	12	1				2		2	
Dover.....	13,029	2	2							
Keene.....	11,210	4	2	1			1			
New Jersey:										
Asbury Park.....	12,400	4								
Atlantic City.....	50,707	9			87		3		1	
Bayonne.....	76,754		8		1				2	
Bloomfield.....	22,019	5	2		4		2			
Clifton.....	26,470	4			2		1			
East Orange.....	50,710	8	1		18		2			
Englewood.....	11,627	2			1		1			
Garfield.....	19,381	5	1		1					1
Hackensack.....	17,667	8					3		1	1
Harrison.....	15,721		2							
Hoboken.....	68,166	15	4	1					1	4
Jersey City.....	298,103		34		2		12		10	
Kearny.....	26,724	6			1				1	1
Montclair.....	28,810	4					2			
Morristown.....	12,548	9			42					
Orange.....	33,298	10	2		12	1	1			
Passaic.....	63,841	21	4	1	10		5		2	2
Paterson.....	135,875		11				1		4	
Perth Amboy.....	41,707	14	2				6			2
Phillipsburg.....	16,923	4	1	1						
Plainfield.....	27,700	3							3	1
Summit.....	10,174	1								
Trenton.....	119,289	43	46	2	1		7		4	4
Union (town).....	20,651		1						1	
West Hoboken.....	40,074	2	1							
West New York.....	29,926	4	2				1			1
West Orange.....	15,573	6			38		1		1	
New Mexico:										
Albuquerque.....	15,157	10	3				2		10	5
New York:										
Albany.....	113,344		4		1				5	
Auburn.....	39,192	6	5						1	
Buffalo.....	508,775	141	18	1	45		37		13	5
Cohoes.....	22,987	7	4				1			
Elmira.....	45,393		4							
Geneva.....	14,648	2		1						
Glens Falls.....	16,638	11	1	1						
Hornell.....	15,025	3					1			
Hudson.....	11,745	2	4							
Ithaca.....	17,004	6	1	1						
Jamestown.....	38,917	9					2			
Lackawanna.....	17,918	1					5			
Little Falls.....	13,029	2	2		1		1		2	
Lockport.....	21,308	5								1
Middletown.....	18,420						1			
Mount Vernon.....	42,726	10	5		28		1		1	
New York.....	5,620,048	1,403	173	14	121	3	206	2	1,245	179
Newburgh.....	30,366	10					2		1	2

¹ Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
New York—Continued.											
Niagara Falls.....	50,760	10	2				3			2	
North Tonawanda.....	15,482	6	1				2				
Olean.....	20,505	7									
Peekskill.....	15,868	3					13				
Port Chester.....	16,573	6					3				
Poughkeepsie.....	35,000	12	3							2	
Rochester.....	295,750	55	13	2	85		5	1			
Saratoga Springs.....	13,181	7	1		1		2				
Schenectady.....	88,723	18	1				24				1
Syracuse.....	171,717	58	31		5		11				5
Troy.....	72,013	32	4				1			3	
Watertown.....	31,285	7	1				1				1
White Plains.....	21,031	5					7			1	1
Yonkers.....	100,176	24	4		9						3
North Carolina:											
Durham.....	21,719	3	2							2	
Greensboro.....	15,861	0									
Raleigh.....	24,418	12	1								
Rocky Mount.....	12,742	7		1							
Salisbury.....	13,884	7									
Wilmington.....	33,372	17	2								
Winston-Salem.....	48,395	15	2				3			2	1
North Dakota:											
Fargo.....	21,961	1	2	1			1				
Grand Forks.....	14,010				1		4				
Ohio:											
Akron.....	208,435	50	11		1		17			1	
Ashtabula.....	22,082	2	1								
Barberton.....	18,811	9	5				2				
Bucyrus.....	10,425	7					2				1
Cambridge.....	13,104	8		1							
Canton.....	87,091	19	8	1	1		2			1	1
Chillicothe.....	15,831	5	4	1			5	1			
Cincinnati.....	401,247	134	25	1	6		12			10	13
Cleveland.....	796,841	166	61	1	54	1	151	1		29	9
Columbus.....	257,031	56	25	1	11		5			17	2
Coshocton.....	10,847	3					3				
Dayton.....	152,559	55	13		1		12			1	
East Cleveland.....	27,292	4					4				
East Youngstown.....	11,237	1									
Findlay.....	17,021	4				9	1				
Fremont.....	12,468	6	1								
Hamilton.....	39,675	14			2					1	1
Lancaster.....	14,706	3	3				1				
Lima.....	41,326	10	2		1		1				
Lorain.....	37,295	3	3		4		8				
Mansfield.....	27,824	8	4		21		2				
Martins Ferry.....	11,634	2	1		7						
New Philadelphia.....	10,718						1				
Newark.....	26,718	6	3								
Niles.....	13,080	1	2								
Norwood.....	24,906	4									
Piqua.....	15,044	4		1			1			1	
Salem.....	10,705	2	1								
Sandusky.....	22,897	11			1		2				
Springfield.....	60,840	14	6	1			1				
Steubenville.....	28,508	8	1								
Toledo.....	243,164	80	19		274	2	15			6	5
Youngstown.....	132,358	37	59	3	2		9			2	5
Zanesville.....	29,569	9	7	1	63					1	
Oklahoma:											
Oklahoma.....	91,265	31	5		2		8			1	1
Tulsa.....	72,075	6			10		4				
Oregon:											
Portland.....	258,288	60	13	1	2		6			17	3
Pennsylvania:											
Philadelphia.....	1,823,779	585	87	16	2,241	33	66	3		70	39
Rhode Island:											
Cumberland (town).....	10,077	4	1		4		1			1	1
East Providence (town).....	21,793		1		1		1				2
Pawtucket.....	64,248	15	1								2
Providence.....	237,595	64	17	1	81	1	7				2

CITY REPORTS FOR WEEK ENDED DECEMBER 16, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
South Carolina:										
Charleston.....	67,957	21	1							
Greenville.....	23,127	4	1							
South Dakota:										
Sioux Falls.....	25,202	5	4	1	1		4			
Tennessee:										
Knoxville.....	77,818						4		1	1
Memphis.....	162,351	60	7				8		10	6
Nashville.....	118,342	32								3
Texas:										
Arlene.....	10,274	19	1	1					8	2
Beaumont.....	40,422	9								
Corpus Christi.....	10,522	3	1							
Corsicana.....	11,356	2	1							
Dallas.....	158,976	43	7				4	2		4
El Paso.....	77,560	15			11				7	5
Fort Worth.....	106,482	21	5						4	2
Galveston.....	44,255	13	1							
Houston.....	138,276	43	2							
San Angelo.....	10,050	8								5
San Antonio.....	161,379	70	3	3			1			8
Waco.....	38,500	11								
Utah:										
Salt Lake City.....	118,110	46	10				2		1	
Vermont:										
Barre.....	10,008				1					
Rutland.....	14,954	8			1					
Virginia:										
Alexandria.....	18,060	9								1
Danville.....	21,539	9								
Lynchburg.....	30,070	5	4						7	1
Norfolk.....	115,777	3			2				1	
Petersburg.....	31,012	9	1		1		4		1	1
Richmond.....	171,667	43	20		2		12			3
Roanoke.....	50,842	15	10	1			4			2
Washington:										
Seattle.....	315,312		1		1		3			
Spokane.....	104,437		3				6			
Tacoma.....	96,965		1				4			
Yakima.....	18,539		1				1			
West Virginia:										
Bluefield.....	15,282	5					1			
Charleston.....	39,608	17					4			
Clarksburg.....	27,869	5								1
Fairmount.....	17,851		5							
Huntington.....	50,177	13	4							1
Martinsburg.....	12,515						1			
Morgantown.....	12,127		2				1			
Moundsville.....	10,669	3	1							
Parkersburg.....	20,050	3	1				7			
Wheeling.....	56,208	11	3		77		1		2	2
Wisconsin:										
Appleton.....	19,561		10	1			1			
Beloit.....	21,284	8			1		12			1
Eau Claire.....	20,906						1			
Fond du Lac.....	23,427	10			1		2		1	
Green Bay.....	31,017		2				3	1		
Janesville.....	18,293	3			1		1			
Kenosha.....	40,472	7	3		13		2			1
Madison.....	38,378	9	5	1	1		1		1	
Manitowoc.....	17,563	5	3						1	
Marinette.....	13,610	5							1	
Milwaukee.....	457,147	105	28	1	708		85	3	9	7
Oshkosh.....	33,162	5	2				1			
Racine.....	58,593	10	3		3		7	1	1	
Sheboygan.....	30,955		11				1			1
Stevens Point.....	11,371						1			
Superior.....	39,671	8								
Waukesha.....	12,558	1			1		2			
Wausau.....	18,661		3		1					
West Allis.....	13,745		2		17		2			
Wyoming:										
Cheyenne.....	13,829	3					2		1	

FOREIGN AND INSULAR.

BRAZIL.

Leprosy—Malaria—Manaos.

Information dated November 18, 1922, shows a total of 300 officially recorded cases of leprosy in Manaos, Brazil, with an estimated number of 1,000 cases. Many of the cases were stated not to have originated in Manaos, but to have come from the surrounding country; attracted by reports of a lazaretto to be erected in the city. Malaria was stated to be prevalent among the native population, but of rare occurrence among foreigners. The population of Manaos was estimated at 30,000 or 35,000.

CANADA.

Communicable Diseases—Ontario—November, 1922 (Comparative).

Communicable diseases were notified in the Province of Ontario, Canada, during the month of November, 1922, as follows:

Disease.	November, 1922.		November, 1921.	
	Cases.	Deaths.	Cases.	Deaths.
Cerebrospinal meningitis.....	3	3	6	5
Diphtheria.....	385	29	940	82
Measles.....	235	0	36	1
Pneumonia (influenzal).....		10		14
Pneumonia (primary).....		172		169
Poliomyelitis (infantile paralysis).....	10	1	10	1
Scarlet fever.....	461	9	513	12
Smallpox.....	76	0	76	0
Tuberculosis.....	156	84	202	117
Typhoid fever.....	37	11	72	21
Whooping cough.....	309	8	78	9

Venereal Diseases.

Venereal diseases were reported in the Province during the month of November, 1922, as follows: Chancroid, 4 cases; gonorrhea, 217 cases, syphilis, 147 cases, as compared with two cases of chancroid, 287 cases of gonorrhea, and 256 cases of syphilis reported during the month of November, 1921.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

The reports contained in the following tables must not be considered as complete or final, either as regards the list of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended January 5, 1923.¹**CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
India: Calcutta.....	Nov. 12-18.....	1	1	

PLAGUE.

Brazil:				
Bahia.....	Oct. 29-Nov. 11...	1		
Porto Alegre.....	Nov. 19-25.....	1		
China:				
Hongkong.....	Nov. 12-18.....	5	3	
Egypt:				
Alexandria.....	Nov. 19-25.....	1		
Port Said.....	do.....	2	1	
Java:				
East Java—				
Soerabaya.....	Oct. 22-28.....	1	1	
Palestine:				
Jerusalem.....	Nov. 27-Dec. 4....	1		In Jaffa.
Peru:				Nov. 1-15: Cases, 8; deaths, 3.
Localities—				Present.
Chepen.....	Nov. 1-15.....			
Guadalupe.....	do.....	3	0	
Lima (country).....	do.....	2	0	
Lima (city).....	do.....	1	1	
San Pedro.....	do.....	2	1	
Trujillo.....	do.....	0	1	
Portugal:				
Lisbon.....	Nov. 20-26.....		1	
Turkey:				
Constantinople.....	Nov. 22-28.....	2		

SMALLPOX.

Arabia:				
Aden.....	Nov. 19-29.....	5	1	
Brazil:				
Bahia.....	Nov. 5-11.....	1		
Canada:				
Manitoba—				
Winnipeg.....	Dec. 10-16.....	2		
Ontario—				
Niagara Falls.....	Dec. 3-16.....	5		
Ottawa.....	Dec. 10-16.....	3		
Chile:				
Concepcion.....	Oct. 30-Nov. 20...		3	
China:				
Antung.....	Nov. 13-26.....	1		
India:				
Calcutta.....	Nov. 12-18.....	1	1	
Java:				
West Java—				
Batavia.....	Nov. 11-17.....	7		
Mexico:				
Chihuahua.....	Dec. 4-10.....		3	
Nogales.....	Dec. 10-19.....		1	
Peru:				
Callao.....	Nov. 1-15.....	2	0	
Lima (country).....	do.....	2	1	
Portugal:				
Lisbon.....	Nov. 19-Dec. 2....	26	6	
Oporto.....	Oct. 15-Dec. 2....	19	8	

¹ From medical officers of the Public Health Service, American consuls, and other sources. For reports received from July 1 to Dec. 29, 1922, see Public Health Reports for Dec. 29, 1922. The tables of epidemic diseases are terminated semiannually and new tables begun.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received During Week Ended January 5, 1923—Continued.****SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Spain:				
Corunna.....	Nov. 26-Dec. 2.....		1	
Seville.....	Nov. 27-Dec. 3.....		12	
Valencia.....	Nov. 26-Dec. 2.....	1		
Switzerland:				
Zurich.....	Nov. 19-25.....	6		
Syria:				
Aleppo.....	Nov. 19-25.....	2	2	
Turkey:				
Constantinople.....	Nov. 19-Dec. 2.....	45	18	
Tunis:				
Tunis.....	Dec. 1-8.....		1	

TYPHUS FEVER.

Algeria:				
Algiers.....	Nov. 11-20.....	1	1	
Brazil:				
Porto Alegre.....	Nov. 19-25.....	1		
Chile:				
Concepcion.....	Oct. 17-Nov. 20.....		4	
China:				
Antung.....	Nov. 13-26.....	5		
Egypt:				
Alexandria.....	Nov. 19-25.....	1	1	
Portugal:				
Oporto.....	Oct. 15-Dec. 2.....	1	1	
Turkey:				
Constantinople.....	Nov. 27-Dec. 2.....	3		

YELLOW FEVER.

Senegal:				
Dakar—				
Saltpond.....				Reported present Dec. 21, 1922.
Warral.....				Do.